Temperature dependence of the absorption of ultraviolet light by oxygen. Kh. E. Sterin and M. M. Sushchinskil. *Bull. acad. sci. U. R. S. S., Sér. phys.* 6, 183-5(1940). — The increase of the absorption coeff. of the air in the neighborhood of 1850 A. with temp. is mainly due to the effect of O_3. The dependence of the absorption of O_3 on the temp. was measured for the wave lengths 1834 A. and 1802 A., and the temp. interval 250-650°. The measurements show that, within the error limit, the increase of the absorption is in accordance with Beer's law, and can be explained by the increase of the number of mols. in the higher oscillatory states. Roksalana Gamow

CA

Optical investigation of hydrocarbons. IV. Raman spectra of cycloparaffins. P. A. Bazhulin, Kh. E. Sterin, T. F. Bulanova, O. P. Solovova, M. B. Turova-Pollak, and B. A. Kazanskii (P. N. Lebedev Phys. Inst. and Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow, and Moscow State Univ.). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* **1946**, No. 1, 7-18; cf. C.A. **38**, 1427[9]; **42**, 4263b.—The Raman spectra of the following compds. (boiling in the range 120-30°) were detd. with the same app. on excitation with 4358 A., and are therefore strictly consistent. Purity of the compds. is characterized by data of b.p. (unless otherwise stated), n_D^{20}, and d_4^{20} following the name. Intensities (in parentheses, following the wave no. in cm.$^{-1}$) are expressed relative to the 802 cm.$^{-1}$ line of cyclohexane taken = 250. Intensities higher than 5 were detd. by photographic photometry, those below 5 visually. A question mark means that the line might be but a repetition of known line under different excitation. Lines printed in italics form bands. I. Cyclopentane (48.4 (745 mm.), 1.4064, 0.7460) 257(0), 291(0), 628(0, b), 750(0), 860(1.5?, b), 901(0), 1004(0), 1031(30, b), 1103(1), *1151(0)*, *1165(1)*, *1181(3)*, *1198(3)*, 1227(3), *1249(3)*, *1263(3)*, *1283(3)*, *1295(3)*, *1311(1)*, 1449(34, b), 1486(5), 2627(0), 2660(0), 2870(170), 2900(30, background), 2921(30, background), 2937(210), 2949(210), 2960(130, b). II. Methylcyclopentane (71.5-72.0 (754), 1.4095, 0.7[illegible]) [illegible], 447(5, b), 534(18), 583(0), 781(0), 798(5), 800(0), 822(1), 830(10, b), 849(10, b), 890(45), [illegible], 1012(0), 1021(0), 1057(0), 1087(8, b), [illegible], *1221(4)*, *1254(0)*, *1275(2)*, *1291(4)*, [illegible], 1446(30), 1456(11), [illegible], 2850(20), 2868(40, background), [illegible], 2950(200, b). III. Ethylcyclopentane [illegible], 1.4213, 0.7672) 213(0, b), [illegible], 422(0, b), 542(2), 591(0), 730(7), 762(7), 809(3, b), [illegible], 903(31), 928(2, b), 946(4, b), 1011(10, b), [illegible], 1080(22), 1094(7), 1128(5), 1172(0), 1192(4), [illegible], 1280(0, b), 1302(2, b), 1317(0), [illegible], 1440(30), 1461(5), 2703(0), 2734(5), 2850(110), 2875(160), 2905(120), 2936(180), 2964(150). IV. Propylcyclopentane (129.0-129.2 (747.0), 1.4270, 0.7771) 321(16, b), 397(9, b), 410(0, b), 737(0), 853(6, b), [illegible], 896(2), 937(8), 951(2), 1018(1.3, b), 1031(1.6, b), 1081(2, b), 1097(4, b), 1142(?), 1170(1), 1191(1), 1200(3), 1294(0), [illegible], [illegible], 1448(40, b, doublet), 2734(2), [illegible], [illegible], 2872(140), 2891(30), 2914(100), 2936(160), 2951(110). V. Isopropylcyclopentane (125.5-126.5 (748), 1.4270, 0.7750) 225(0), 334(14), [illegible], 398(0), 418(7), 440(2, b), 465(14), 498(0, b), 541(0), 564(0), 730(7), 740(2), 823(0), 840(9, b), 854(2, b), 877(0), 890(3), 938(0), 950(12), 982(7, doublet), 1005(0), 1032(13, b), 1083(4, b), 1147(0), 1160(4), 1186(0), 1202(5), 1224(0), 1251(2), 1294(4, b, doublet), 1321(8), 1350(9), 1448(43), 1467(27, b), 2718(5), 2862(120), 2870(80), 2905(110, doublet), 2934(160), 2956(150), 2980(150). VI. Butylcyclopentane (156.2-156.8 (755), 1.4[illegible], 0.7[illegible]) 280(4), 300(22), [illegible], 361(0), 420(0), [illegible], 876(3), 880(20), [illegible], [illegible], 1022(0), [illegible], [illegible], [illegible], [illegible]

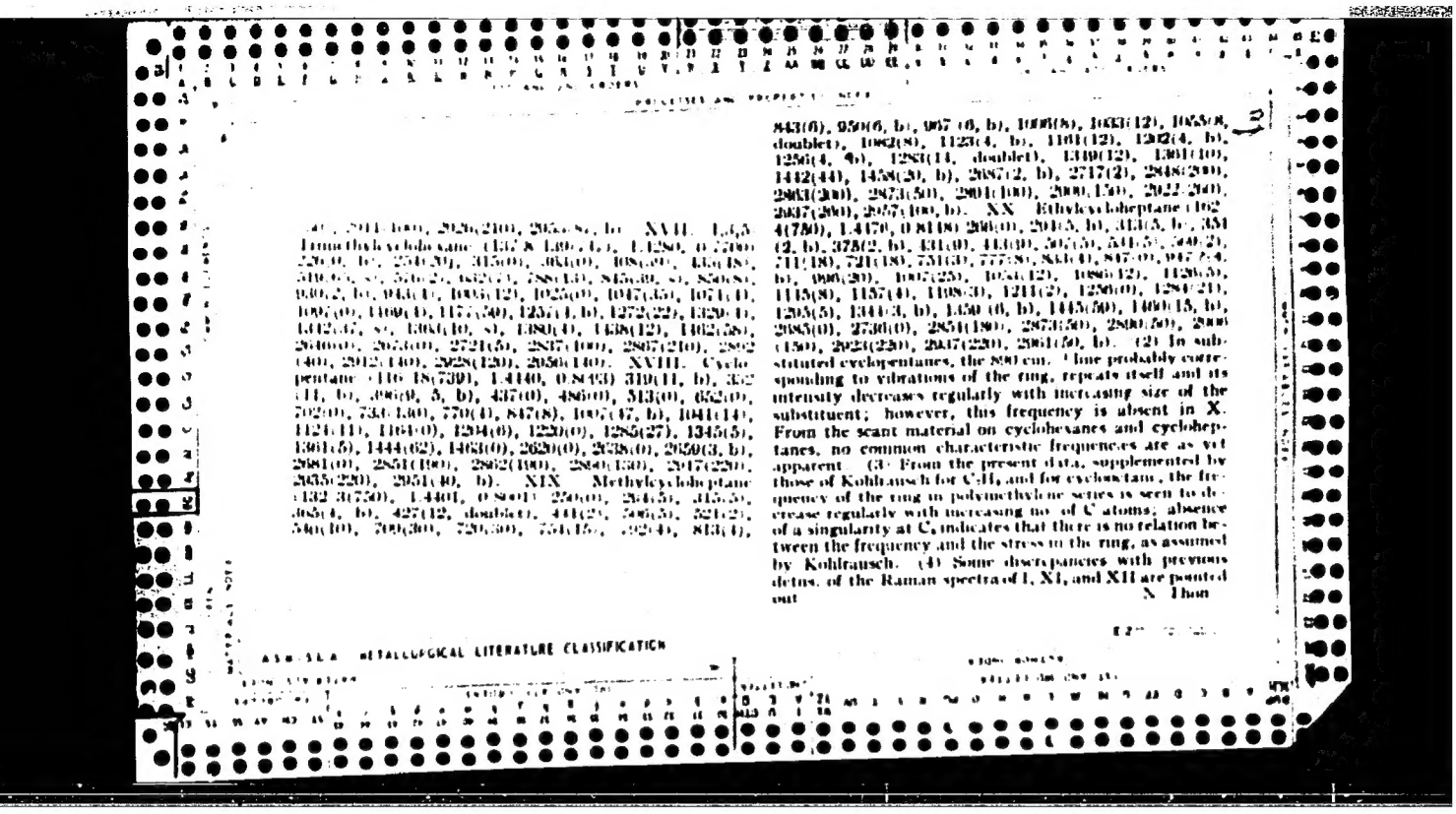
(over)

3

ASM SLA METALLURGICAL LITERATURE CLASSIFICATION

1129(7, s), *1165(2)*, *1151(2)*, *1193(2)*, *1217(0)*, 1245(0), *1272*, *1301(10)*, 1340(0), 1440(34), 1456(0), 1475(3), [illegible], 2665(0), 2700(3), 2846(70), 28[illegible](100), 2871 (120), 2908(80), 2910(90), 2930(100), 2964(80). VII. Amylcyclopentane (179.5-180.5 [illegible], 1.4346, 0.7852) 252(0), 276(16), 304(0), 372(0), 603(0), 675(0), 714(0), 751(0, b), 814(0), 843(3, b), 871(1), 896(21), 930(2), [illegible], 981(1), 1000(0), 1028(5), 1055(3), 1081(7, b), 1101(3), 1128(5), 1140(0), 1174(0), 1200(0), 1210(0, b), 1275(0), 1301(12), 1340(2), 1446(0), 1452(0), 2663(0), 2868(0), 2731(0, b), 2856(80), 28[illegible](100), 2905(50), 2952(0), 2921(70), 2933(100), 2962(90). VIII. *trans*-1,2-Dimethylcyclopentane (91.2-91.5 (755), 1.4117, 0.7625) 251(4, b), 262(0, b), 278(0, b), 320(0), 364(0), 497(35), 527(5), 580(0), 607(4, b), 721(0), 760(27, doublet), 798(0), 867(5), 896(34), 957(5, b), 1005(4), 1022(8), 1081(13, b), 1147(10), 1186(3, b), 1265(3, b), 1283(2), 1303(2), 1340(5), 1360(3), 1457(40, b, doublet), 2676(0), 2725(4), 2854(170, b), 2858(190), 2900(100), 2924(150), 2957(230, doublet). IX. *cis*-1,2-Dimethylcyclopentane (98.4-98.5 (755), 1.4215, 0.7663) 231(0), 287(0), 334(4, b), 372(2, b), 400(16), 501(0), 585(3, b), 764(41, doublet), 847(3, b), 866(3), 888(38), 942(7), 956(7), 981(7), 1019(15, b), 1035(7, b), 1080(5), 1107(7), 1160(4), 1192(0, b), 1265(4, b), 1295(7), 1340(7), 1347(6), 1378(2), 1452(13, b), 2662(0), 2734(0), 2860(220), 2906 (200), 2930(200), 2951(150), 2961(240). X. 1,3-Dimethylcyclopentane (89.5-90.6, 1.4092, 0.7490) (mixt. of cis and trans) 213(0), 272(0), 358(0), 373(3, b), 409(0), 420(3, b), 514(13), 540(3), 591(3, b, doublet), 726(0), 803(13, b), 828(28), 878(0), 930(3), 985(8), 1021(3, b), 1041(3, b), 1085(3), 1101(3), 1140(11), 1162(11), 1188(2, b), 1251(0), 1298(2, b), 1314(8), 1340(5, doublet), 1457(40, b), 2727(4), 2847(100, b), 2867(220), 2905(100), 2925(220), 2953(220). XI. Cyclohexane (80.6-80.7, 1.4267, 0.7770) 384(7), 427(12), 802(250), 1029(92), 1158(10), 1267(74), 1348(13), 1429(2), 1445(73), 1460(2), 2114(0), 2158(0), 2635(2, a), 2665(12), 2690(1), 2852 (400), 2896(100), 2903(120), 2921(300), 2941(340). XII. Methylcyclohexane (100.8, 1.4233, 0.7693) 312 (0, b), 408(14), 440(24), 522(0, possibly belonging to traces of PhMe), 540(21), 751(0), 770(100, s), 787(0, PhMe ?), 845(18, s), 971(16), 1004(0, PhMe ?), 1033(31), 1061(2), 1080(13, b, doublet), 1164(14), 1205(8), 1250(20), 1266(20), 1305(11), 1344(16, doublet), 1365(2, b), 1443(34), 1460(45), 2664(4, b), 2720(2), 2844(240), 2856(240), 28[illegible](100), 2896(100), 2910(270), 2935(290), 2955(100, b). XIII. Ethylcyclohexane (131.2, 1.4334, 0.7881) 246(0), 346(0), 391(22), 427(4), 445(8), 456(10), 511(12), 575(2), 7[illegible](20), 771(2), 795(31), 810(0), 842(21), 8[illegible](0), 913(2), 988(0, b), 1000(17, b), 1034(50), 1062(2), 1080(5), 1097(5), 1161(16), 1192(3), 1262(43), 1290(8, b), 1350(8, b), 1365(2, b), 1446(64), 1463(10, b), 2664(4), 2690(2), 2842(240), 2855(240), 2880(100), 2898(50), 2910(100), 2923(180), 2938(240), 2962(50, b). XIV. 1,2-Dimethylcyclohexane (125.0-125.5, 1.4315, 0.7834) (mixt. of cis and trans) 284(0), 332(2), 362(2), 415(13), 441(7), 489(50), 538(8), 590(4), 729(45), 770 (31), 820(6), 841(0), 858(5), 915(13, b), 977(6), 10[illegible] (24), 1055(4, b), 1077(10), 1094(10, b), 1164(18, doublet), 1221(10), 1255(23, doublet), 1290(9), 1334(0), 1318(2), 1344(16), 1354(16), 1366(0), 1440(58), 1460(36), 2664(4), 2721(0), 2844(160), 2856(100), 2876(95), 2900(50), 2917(150), 2934(200), 2956(00), 2975(40, b). XV. 1,3-Dimethylcyclohexane (120.4-120.8, 1.4265, 0.7[illegible]) (mixt. of cis and trans) 2[illegible](4), 340(0), 40[illegible](4, b), 410(20), 440(8), 455(8), 51[illegible](44), 508(0), 626(2), 741(21), 771(57), 818(6), 861(2), 933(3, b, doublet), 942(7), 1006(4), 1050(37), 1078(0), 1095(0), 1110(4, b), 1161(21), 1180(6), 1220(7), 1254(2), 1270(19), 1306(6), 1337(16), 1357(8), 1440(27), 1461(55), 2640(0), 2666(4), 2722(0), 2842 (150), 2868(180), 2895(50), 2912(150), 2920(220), 2953 (120, b). XVI. *trans*-1,4-Dimethylcyclohexane (119.5-119.8, 1.4223, 0.7677) 254(0), 335(0), 376(35), 429(0), 454(16), 475(14), 507(0), 547(0), 566(0), 657(2), 760 (120), 786(7), 819(0), 926(2, b), 958(12), 1005(4), 1042(57), 1104(0), 1106(12), 1180(12), 1250(26), 1264(4, b), 1307(11), 1348(23), 1361(4, b), 1446(8), 1460(44), 2676(0), 2723(2), 2748(4), 2846(180), 2868(150), 2893

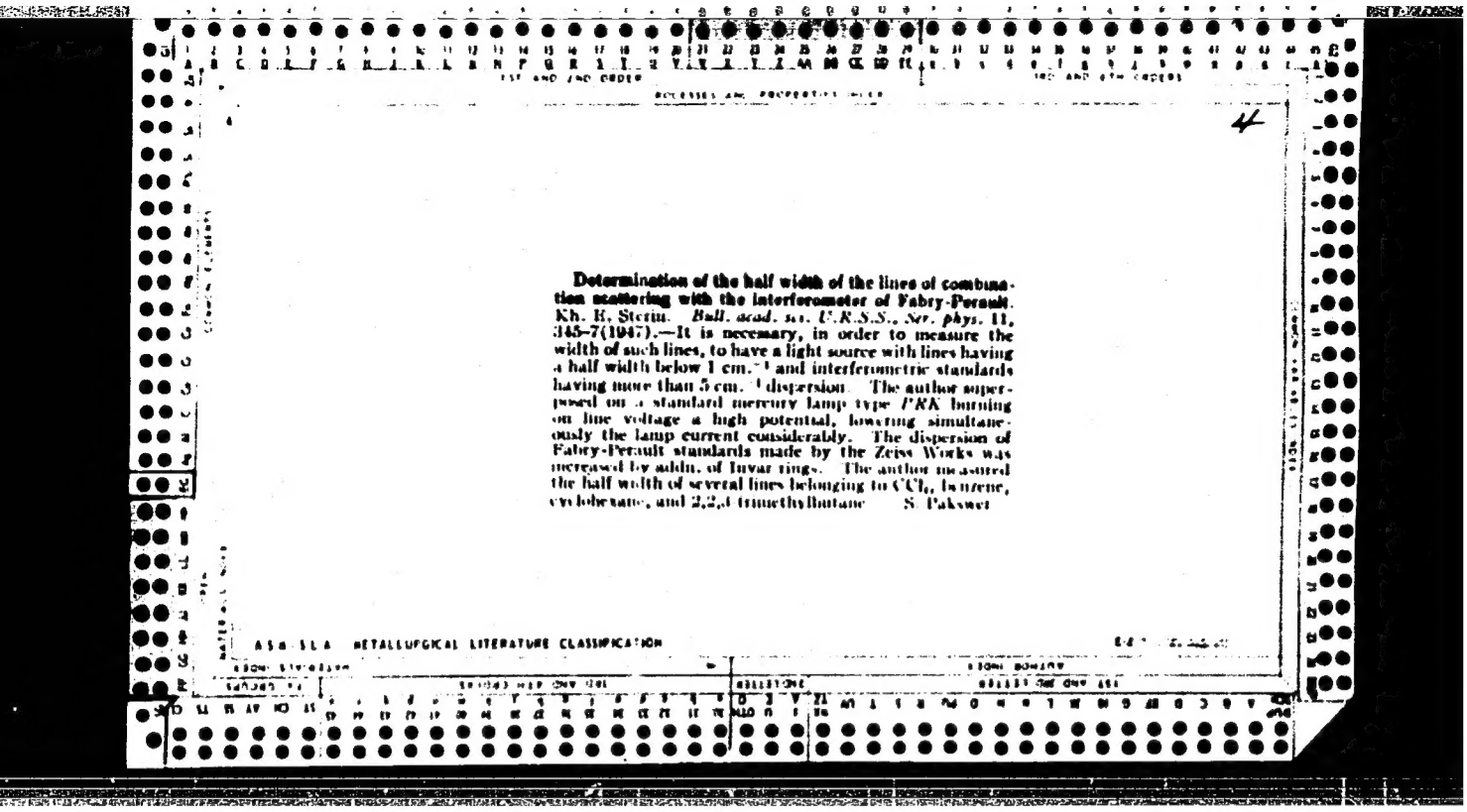
(Cont)



843(6), 959(6, b), 997 (6, b), 1008(8), 1033(12), 1065(8, doublet), 1092(8), 1123(4, b), 1161(12), 1202(4, b), 1256(4, b), 1288(14, doublet), 1349(12), 1391(10), 1442(44), 1458(30, b), 2887(2, b), 2717(2), 2848(200), 2883(200), 2873(50), 2901(100), 2900(150), 2922(200), 2937(200), 2957(100, b). XX Ethylcycloheptane (102-4(780), 1.4170, 0.8140) 200(0), 201(5, b), 313(5, b), 351(2, b), 378(2, b), 431(0), 443(0), 501(5), 541(5), 560(2), 711(18), 721(18), 751(3), 777(8), 843(4), 867(0), 947(24, b), 980(20), 1007(25), 1034(12), 1086(12), 1126(5), 1145(8), 1157(4), 1198(3), 1211(2), 1250(0), 1284(21), 1295(5), 1344(3, b), 1450 (6, b), 1445(50), 1469(15, b), 2885(0), 2730(0), 2851(180), 2873(150), 2880(70), 2899(150), 2921(220), 2947(220), 2961(50, b). (2) In substituted cyclopentanes, the 880 cm.⁻¹ line probably corresponding to vibrations of the ring, repeats itself and its intensity decreases regularly with increasing size of the substituent; however, this frequency is absent in X. From the scant material on cyclohexanes and cycloheptanes, no common characteristic frequencies are as yet apparent. (3) From the present data, supplemented by those of Kohlrausch for C_7H_{14} and for cyclooctane, the frequency of the ring in polymethylene series is seen to decrease regularly with increasing no. of C atoms; absence of a singularity at C_5 indicates that there is no relation between the frequency and the stress in the ring, as assumed by Kohlrausch. (4) Some discrepancies with previous detns. of the Raman spectra of I, XI, and XII are pointed out.

X Thus

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Determination of the half width of the lines of combination scattering with the interferometer of Fabry-Perault. Kh. E. Sterin. *Bull. acad. sci. U.R.S.S., Ser. phys.* 11, 345–7(1947).—It is necessary, in order to measure the width of such lines, to have a light source with lines having a half width below 1 cm.$^{-1}$ and interferometric standards having more than 5 cm.$^{-1}$ dispersion. The author superposed on a standard mercury lamp type *PRK* burning on line voltage a high potential, lowering simultaneously the lamp current considerably. The dispersion of Fabry-Perault standards made by the Zeiss Works was increased by addn. of Invar rings. The author measured the half width of several lines belonging to CCl_4, benzene, cyclohexane, and 2,2,4 trimethylbutane. S. Pakswer

STERIN, KH. E.

Jul/Aug 47

USSR/Physics
Spectrum Analysis
Hydrocarbons, Spectrum Analysis

"Optical Method of Investigating Hydrocarbons," P. A. Bazhulin, Kh. E. Sterin, 5 pp

"Iz Ak Nauk, Ser Fiz" Vol XI, No 4

Describes the results obtained from a series of investigations on the dispersion spectra of several hydrocarbons, It was very difficult to obtain pure hydrocarbons. This is the first report made on the study of alkenes. Submitted at the Inst of Physics imeni P. N. Lebedev, Acad Sci USSR.

PA 28T71

PA 36/49T71

USSR/Physics
Optics
Spectra Analysis

Sep 48

"The Line Spectrum of Dispersion Lines in a Benzene-Toluene Mixture," Kh. Ye. Sterin, Optics Lab, Phys Inst imeni P. N. Lebedev, Acad Sci USSR, 4 pp

"Dok Ak Nauk SSSR" Vol LXII, No 2

Studies influence of admixtures on sharpness of doublet in line spectrum, and thus verifies assumption concerning the decrease of tau in mixtures. Tau is a parameter, having the dimension of time and inversely proportional to the

[redacted] 36/49T71

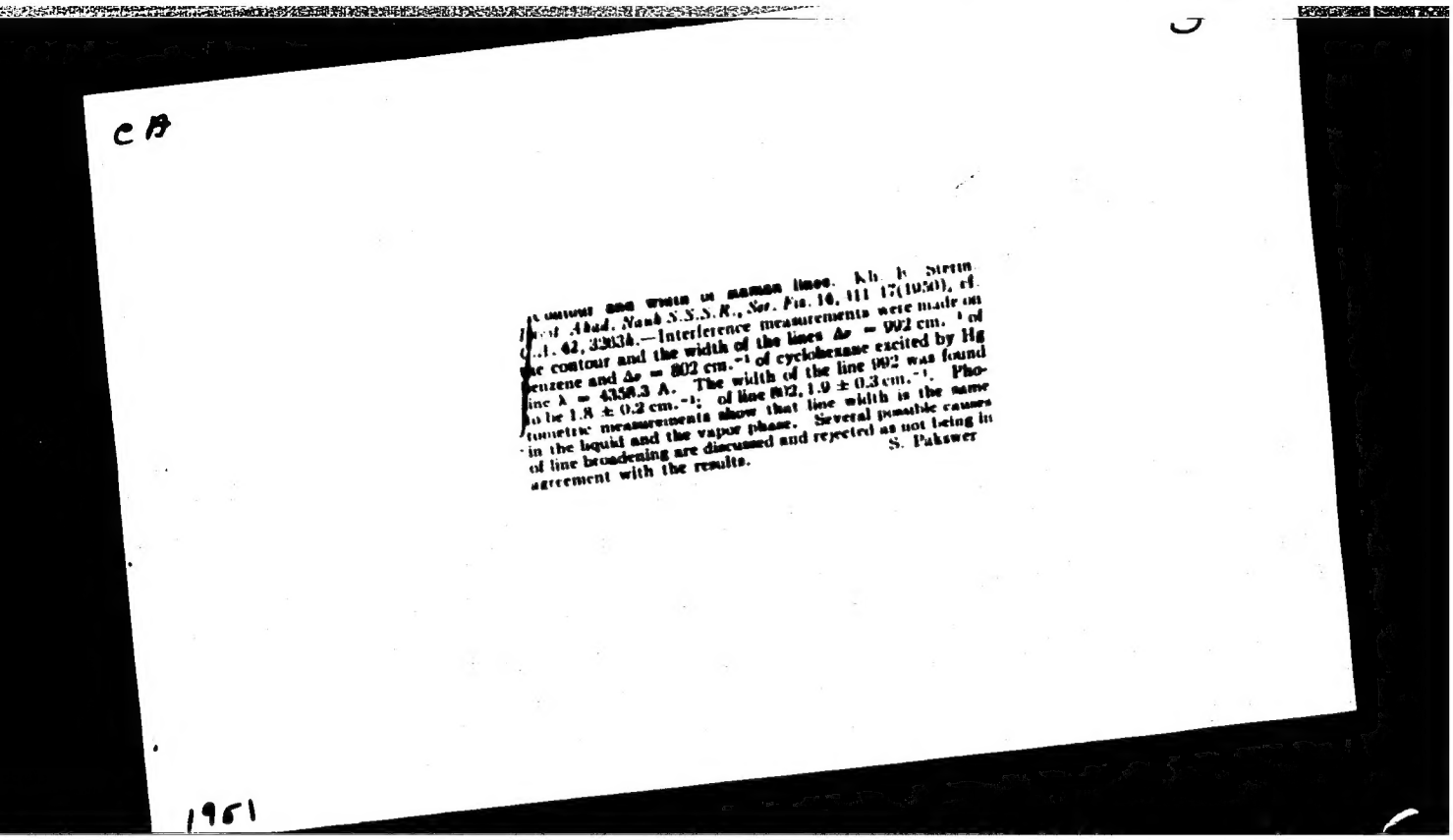
USSR/Physics (Contd)

Sep 48

"speed of reaction," in relaxation theory of absorption of ultrasonic waves in liquids. Submitted by Acad S. I. Vavilov, 13 Jul 48.

[redacted] 36/49T71

STERIN, KH. YE.



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...contour and width of raman lines. Kh. L. Stepin. ...of Akad. Nauk S.S.S.R., Ser. Fiz. 14, 111-17(1950); cf. ...1. 42, 33034.—Interference measurements were made on ...e contour and the width of the lines $\Delta\nu$ = 992 cm.$^{-1}$ of ...enzene and $\Delta\nu$ = 802 cm.$^{-1}$ of cyclohexane excited by Hg ...ine λ = 4358.3 A. The width of the line 992 was found ...o be 1.8 ± 0.2 cm.$^{-1}$; of line 802, 1.9 ± 0.3 cm.$^{-1}$. Photometric measurements show that line width is the same in the liquid and the vapor phase. Several possible causes of line broadening are discussed and rejected as not being in agreement with the results. S. Pakswer

1951

STERIN, KH. Ye

USSR/Physics - Raman Spectra Sep/Oct 53

"Width of Raman Spectra Line in Vapor," I. I. Sobelman, Phys Inst im Lebeden, Acad Sci USSR

Iz Ak. Nauk, Ser Fiz, Vol 17, No 5, pp 554-560

Kh. Ye. Sterin investigated the problem (Izv AN, Ser Fiz 14 (1950) by measuring line widths of oscillations of benzene and cyclohexane. Author investigates further causes and laws governing the widening of Raman spectra lines in vapor with increasing pressure. He derives and solves corresponding eqs.
Indebted to G. S. Lansberg.

274T84

STERN, Kh. Ye.

U S S R .

Determination of individual hydrocarbons in gasolines by the combined method. VI. Karachukhur gasoline. G. A. Kazanskiy, G. S. Landsberg, A. F. Plate, A. L. Liberman Ye. A. Mikhaylova, Kh. Ye. Stern, T. F. Bulanova, G. A. Tarasova, and V. T. Alekaayan (N.D. Zelinskiy Inst., Org. Chem., Acad. Sci. U.S.S.R., Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk, 1954, 1053-66; cf. C.A. 45, 7342b. -- The combination of distn. chromatography, and Raman spectroscopy applied to a sample of Karachukhur gasoline (150° end point) was successful in identifying 85.4% of the hydrocarbon compn., showing the presence of 65 hydrocarbons. The gasoline contained 16.37% aromatic, and approx. equal amts. of aliphatic and naphthenic hydrocarbons; about 40% of the paraffins are normal alkanes. The ratio of cyclopentane derivs. to cyclohexane derivs. is 0.44.

G. M. Kosolapoff

No 6

USSR/ Physics - Instruments

Card 1/1 Pub. 43 - 32/97

Authors : Abramson, I. S.; Sterin, Kh. E.; and Mogilevskiy, A. N.

Title : Photoelectric methods of recording spectra and the installation at the laboratory of the Commission on Spectroscopy

Periodical : Izv. AN SSSR, Ser. fiz. 18/2, 264-265, Mar-Apr 1954

Abstract : A photoelectric arrangement for the registration of combined diffusion spectra which operates on the AC-current amplification principle is described. Registration of the spectrum is realized by means of a cathode ray tube, the vertically deflecting plates of which are fed the voltage of the measuring signal and the horizontal plates are fed a voltage proportional to the angle of deflection of the spectrograph prisms. The ISP-51 spectrograph is the major element of the photoelectric installation. Automatic amplification control is employed for the purpose of eliminating the effect of light source (mercury lamp) intensity fluctuations.

Institution : .....

Submitted : .....

STERIN, Kh. Ye.

USSR/Physics - Spectral analysis

Card 1/1 Pub. 43 - 34/62

Authors : Aleksanyan, V. T.; Lukina, M. Yu.; Sterin, Kh. Ye.; and Kazanskiy, B. A.

Title : Combined diffusion spectra of certain hydrocarbons of the cyclobutane series

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 699-702, Nov-Dec 1954

Abstract : The results obtained in studying the spectra of nine cyclobutane hydrocarbons are analyzed. An interpretation of the various frequencies and their forms (trans-cis, etc.) is given. Two references: 1 USA and 1 USSR (1943-1954). Table.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. of Organ. Chem. and the Commission on Spectroscopy

Submitted : .....

...N, Kh. Ye.

USSR/ Physics - Spectral analysis

Card 1/1 Pub. 43 - 36/62

Authors : Kazanskiy, B. A.; Landsberg, G. S.; Aleksanyan, V. T.; Bulanova, T. F.; Liberman, A. L.; Mikhaylova, Ye. A.; Plate, A. F.; Sterin, Kh. Ye.; and Ukholin, S. A.

Title : Analysis of aromatic ligroin parts by the combined diffusion spectra

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 704-706, Nov-Dec 1954

Abstract : Brief report is presented on the method and some results obtained during individual and close-group analysis of primary and secondary aromatics of ligroin. Analysis of results obtained showed that the basic ligroin (taken from the Embesk Petroleum Sources) contained alkyl substitutes of benzene and cyclohexane with short term substituting radicals. Three references: 1 USA and 2 USSR (1947-1953). Tables.

Institution : Acad. of Sc., USSR., The N. D. Zelinskiy Inst. of Organ. Chem. and the Commission on Spectroscopy

Submitted : .....

STERLIN, Kh. E.

USSR

Catalytic transformations of *n*-heptane and *n*-octane in the presence of platinized carbon. B. A. Kazanskii, A. L. Liberman, T. F. Bulanova, V. T. Aleksanyan, and Kh. E. Sterin. *Doklady Akad. Nauk S.S.S.R.* 95, 77–80(1954). Passage of *n*-heptane over Pt-C at 310° gave 85.0% catalyzate contg. 4–6% aromatics and a small amt. of unsatd. hydrocarbons; the dearomatized residue apparently contained cyclic products, and Raman analysis indicated the presence of 10% *trans*-1,2-dimethylcyclopentane, PrCHMeEt, possibly BuCHMe$_2$, CHEt$_3$, and PrCHMeCHMe$_2$. Similar treatment of *n*-octane gave analogous results with the catalyzate (88.3%) contg. small amts. of *n*-propylcyclopentane and *cis*-1-methyl-2-ethylcyclopentane.

G. M. Kosolapoff

Sterin, K. B. E

USSR

Catalytic cyclization of isooctane with formation of a five-membered ring. B. A. Kazanskiĭ, A. L. Liberman, V. T. Aleksanyan, and Kh. B. Sterin (Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 95, 281–4 (1954); cf. *ibid.* 77–80.—Isooctane (31 g.) passed over 20% Pt-C at 310° yielded a catalyzate which was freed from the aromatic content with silica gel. The aromatic portion consisted of 15% MePh, 35% *p*-xylene, and 50% *m*-xylene. Refractometry showed that the residue contained some 30% cyclic hydrocarbons. Fractionation of the material gave about 5.6 g. 1,1,3-trimethylcyclopentane, identified by the Raman spectrum (cm.$^{-1}$). Traces of 1,1-dimethylcyclohexane were detected by the presence of Raman line 708 cm.$^{-1}$. G. M. Kosolapoff

KIBISOV, G.I., kandidat khimicheskikh nauk; STERIN, Kh.Ye., kandidat fizikomatematicheskikh nauk; VREDEN-KOBETSKAYA, T.O., mladshiy nauchnyy sotrudnik; MANDEL'SHTAM, S.L., doktor fiziko-matematicheskikh nauk, redaktor; GUROV, K.P., redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Spectrum analysis; annotated list of Soviet works on spectrum analysis, 1931-1950] Spektral'nyi analiz; annotirovannyi ukazatel' sovetskikh rabot po spektral'nomu analizy, 1931.-1950. Moskva, 1955. 181 p. (MLRA 8:12)

1. Akademiya nauk SSSR. Komissiya po spektroskopii.
(Bibliography--Spectrum analysis)

ALEKSANYAN, V.T.; STERIN, Kh.Ye.; LIBERMAN, A.L.; MIKHAYLOVA, Ye.A.
PRYANISHNIKOVA, M.A.; KAZANSKIY, B.A.

Report no.8. Raman spectra of a few aromatic hydrocarbons.
Izv.AN SSSR.Ser.fiz.19 no.2:225-233 Mr-Ap '55. (MLRA 9:1)

1.Komissiya po spektroskopii i Institut organicheskoy khimii
imeni N.D.Zelinskogo Akademii nauk SSSR.
(Tartu--Spectrum analysis--Congresses)

I-16

USSR /Chemical Technology. Chemical Products and Their Application

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31949

Author : Rumyantseva Z. A., Gilimzanova F.M., Sterin Kh. Ye.

Inst : Academy of Sciences Tadzhik SSR

Title : Specific Hydrocarbon Composition of High-Sulfur Gasoline of Direct Distillation

Orig Pub: Tr. AN TadzhSSR, 1955, 41, 45-58

Abstract: The combined method of Landsberg-Kazanskiy for the study of specific hydrocarbon composition is applied in the study of gasoline obtained by

Card 1/3

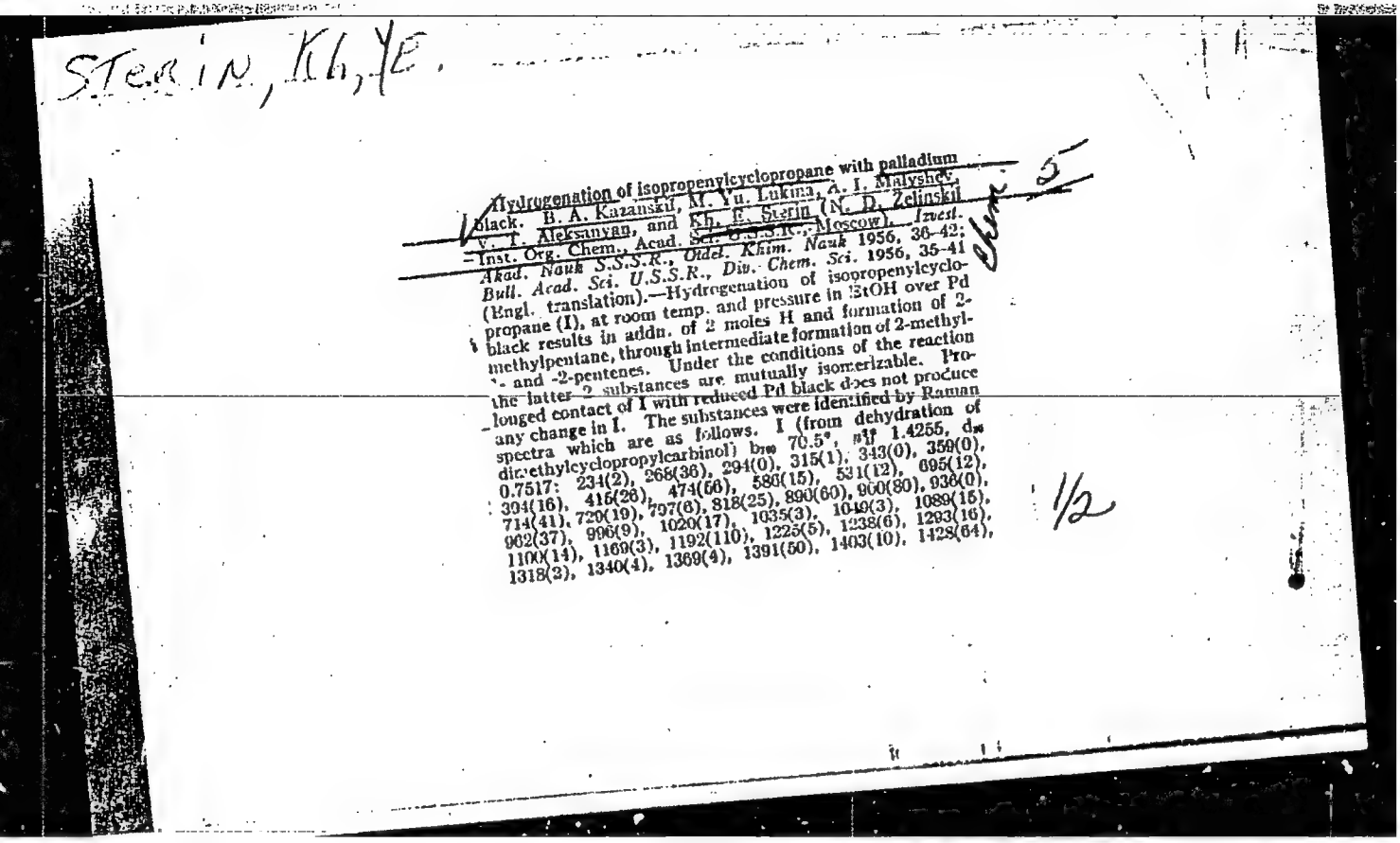
USSR /Chemical Technology. Chemical Products and Their Application I-16

Treatment of natural gases and petroleum. Motor fuels. Lubricants.

Abs Jour: Referat Zhur - Khimiya, No 9, 1957, 31949

hexane hydrocarbons with short, unbranched side chains. Sulfur compounds are concentrated in the aromatic portion of the gasoline.

Card 3/3



STERIN, Kh. E.

Hydrogenation of isopropenylcyclopropane with palladium black. B. A. Kazanskiĭ, M. Yu. Lukina, A. I. Malyshev, V. T. Aleksanyan, and Sh. E. Sterin (N. D. Zelinskiĭ Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 36-42; *Bull. Acad. Sci. U.S.S.R., Div. Chem. Sci.* 1956, 35-41 (Engl. translation).—Hydrogenation of isopropenylcyclopropane (I), at room temp. and pressure in EtOH over Pd black results in addn. of 2 moles H and formation of 2-methylpentane, through intermediate formation of 2-methyl- and -2-pentenes. Under the conditions of the reaction the latter 2 substances are mutually isomerizable. Prolonged contact of I with reduced Pd black does not produce any change in I. The substances were identified by Raman spectra which are as follows. I (from dehydration of dimethylcyclopropylcarbinol) bp 70.5°, n_D^{20} 1.4255, d_4^{20} 0.7517: 234(2), 268(36), 294(0), 315(1), 343(0), 359(0), 394(16), 416(26), 474(66), 580(15), 631(12), 695(12), 714(41), 720(19), 797(6), 818(25), 890(60), 960(80), 986(0), 992(37), 996(9), 1020(17), 1035(3), 1049(3), 1089(15), 1100(14), 1169(3), 1192(110), 1225(5), 1238(6), 1293(16), 1318(3), 1340(4), 1369(4), 1391(50), 1403(10), 1428(64),

Card 1/2

Kazanskiĭ, B. A., Lukina, M. Yu...

1459(43), 1503(2), 1635(114), 1649(90), 2854(10), 2870(10), 2898(20), 2917(45), 2938(10), 2973(20), 2988(60), 3013(140), 3083(60). *3-Methyl-1-pentene*, b_{760} 61.4°, n_D^{25} 1.3918, d_{25} 0.6802: 199(6), 267(1), 292(0), 327(7), 349(7), 372(0), 400(20), 414(1), 428(3), 447(5), 469(1), 497(4), 527(14), 538(3), 592(0), 622(0), 676(1), 703(12), 738(17), 768(1), 794(1), 818(24), 826(31), 865(1), 890(18), 909(14), 930(1), 964(3), 978(1), 995(9), 1027(3), 1046(14), 1079(1), 1102(17), 1149(1), 1175(1), 1200(1), 1215(12), 1225(3), 1259(3), 1271(0), 1301(7), 1327(3), 1351(1), 1383(22), 1411(30), 1428(46), 1453(34), 1651(76), 2818(10), 2843(170), 2938(130), 2965(80), 2984(80), 3001(30), 3020(5), 3077(25). *2-Methyl-2-pentene*, b_{760} 66.9°, n_D^{25} 1.4004, d_{25} 0.6862: 260(0), 359(17), 406(4), 413(4), 444(0), 472(110), 514(13), 717(1), 740(10), 764(2), 818(21), 833(15), 875(0), 908(9), 929(0), 956(3), 980(0), 1009(7), 1063(34), 1084(2), 1121(5), 1149(4), 1167(4), 1203(3), 1263(8), 1305(19), 1353(10), 1382(43), 1439(15), 1455(53), 1478(4), 1525(5), 1677(145), 2727(10), 2850(80), 2876(100), 2889(40), 2913(160), 2967(100), 2987(20), 3035(10).

G. M. Kosolapoff

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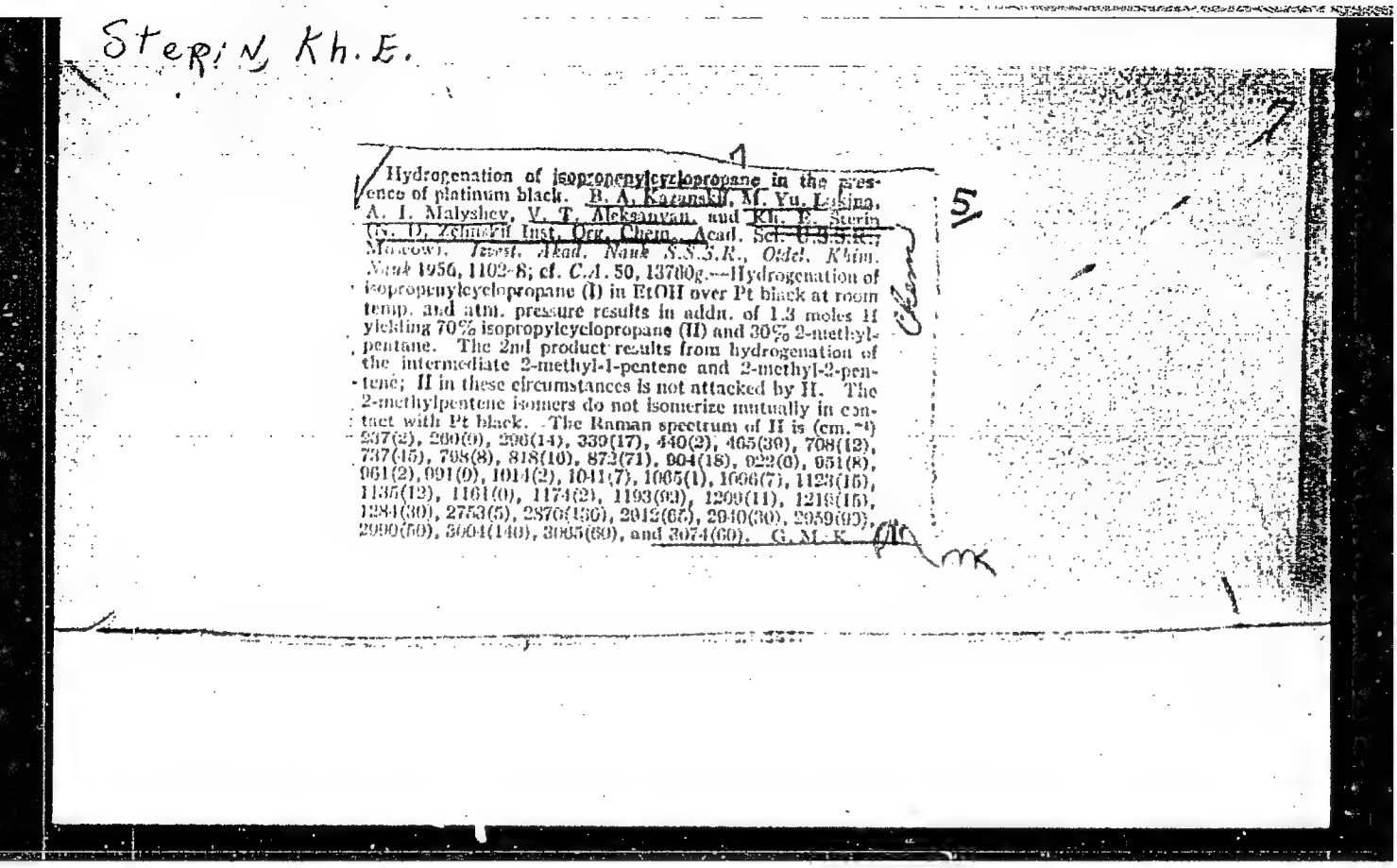

Sterin, Kh. E.

Hydrogenation of isopropenylcyclopropane in the presence of platinum black. B. A. Kazanskii, M. Yu. Lukina, A. I. Malyshev, V. T. Alekseevan, and Kh. E. Sterin (N. D. Zelinskii Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 1102-8; cf. *C.A.* 50, 13780g.—Hydrogenation of isopropenylcyclopropane (I) in EtOH over Pt black at room temp. and atm. pressure results in addn. of 1.3 moles H yielding 70% isopropylcyclopropane (II) and 30% 2-methylpentane. The 2nd product results from hydrogenation of the intermediate 2-methyl-1-pentene and 2-methyl-2-pentene; II in these circumstances is not attacked by H. The 2-methylpentene isomers do not isomerize mutually in contact with Pt black. The Raman spectrum of II is (cm.$^{-1}$) 237(2), 260(0), 296(14), 339(17), 440(2), 465(30), 708(12), 737(45), 798(8), 818(10), 872(71), 904(18), 922(6), 951(8), 961(2), 991(0), 1014(2), 1041(7), 1065(1), 1096(7), 1123(15), 1135(12), 1161(0), 1174(2), 1193(93), 1209(11), 1219(15), 1284(30), 2753(5), 2870(150), 2912(65), 2940(30), 2959(93), 2990(50), 3004(140), 3085(80), and 3074(60). G. M. K.

SHKA, Kh, Ye.

USSR/ Chemistry - Hydrogenation

Card 1/1 Pub. 40 - 9/25

Authors : Kazanskiy, B. A.; Lukina, M. Yu.; Malyshev, A. I.; Aleksanyan, V. T.; and Sterin, Kh. Ye.

Title : Hydrogenation of isopropenylcyclopropane in the presence of Pd black

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 36-42, Jan 1956

Abstract : Experiments showed that the hydrogenation of isopropenylcyclopropane in an alcohol solution in the presence of Pd-black at room temperature and atmospheric pressure results in the addition of two hydrogen molecules to the propane and the formation of 2-methylpentane. It was found that the hydrogenation is followed by intermediate formation of 2-methylpenene-1 and 2-methylpentene-2. Isomerization of 2-methylpenetene-2 into 2-methylpentene-1 and vica versa was observed under conditions identical to those of hydrogenation. Continuous agitation with reduced Pd-black produced no effect on the isopropenylcyclopropane. Ten references: 5 Russ and USSR, 4 USA and 1 Germ. (1912-1954). Tables; graphs.

Institution : Acad. of Sc., USSR, Inst. of Organ. Chem. im. N. D. Zelinskiy

Submitted : February 15, 1955

M.Yu.

KAZANSKIY, B.A.; LUKINA, MYu.; NAKHAPETYAN, L.A.; ALEKSANYAN, V.T.; STERIN, Kh.Ye.

Isomerization of isopropenylcyclobutane over silica gel catalysts in the conditions of adsorption chromatographic analysis. Izv.AN SSSR. Otd.khim.nauk no.11:1421-1422 N '56. (MIRA 10:3)

1. Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR i Komissiya po spektroskopii pri Otdelenii fiziko-matematicheskikh nauk Akademii nauk SSSR.
(Cyclobutane) (Chromatographic analysis)

STERIN KH.YE.

51-5-3/26

AUTHOR: Aleksanyan, V.T. and Sterin, Kh.Ye.

TITLE: The Intensities of Lines in Raman Spectra of Standard Substances. (Intensivnosti liniy v spektrakh kombinatsionnogo rasseyaniya veshchestv-etalonov)

PERIODICAL: Optika i Spektroskopiya, 1957, Vol. 2, No.5, pp. 562 - 567 (USSR).

ABSTRACT: This paper reports accurate measurements of the Raman spectrum intensities of the standard substances: cyclohexane, methylcyclohexane, toluene and of other substances which can be used as standards: cyclopentane, benzene and carbon tetrachloride.

Experimental technique: Mercury lamps ПРК-2 were used and the Raman spectra excited with the 4358 Å line. The standard liquids were not thermostatted at room temperature. A spectrograph with a camera of f = 270 mm was used. Two arrangements were employed giving 150 and 100 cm^{-1}/mm linear dispersion (with 0.04 mm wide slit in both cases) Effects of variation of the source - lamp current and of the dispersion on the Raman spectra of cyclohexane are given in Table 1. Lowering of the lamp current from 2.9 A to 2.2 A affected the line intensities but an increase of the dispersion from 150 to 100 cm^{-1}/mm had no practical effect.

Ca. Card 1/3

ALEKSANYAN, V.T.; STERIN, Kh.Ye.

Raman spectra of cicyclo-2,2,1-heptane, bicyclo-2,2,1-hept-5-ene, bicyclo-2,2,1-hepta-2,5-diene and their homologous. Fiz. sbor. no.3:59-63 '57. (MIRA 11:8)

1. Komissiya po spektroskopii AN SSSR.
(Norcaradiene--Spectra)
(Bicycloheptene--Spectra)
(Bicycloheptadiene--Spectra)

ALEKSANYAN, V.T.; STERIN, Kh.Ye.; LUKINA, M.Yu.; SAL'NIKOVA, L.G.; SAFONOVA, I.L.

Raman spectra of various cyclopropane hydrocarbons and conjugation of three-member ring with double bonds. Fiz. sbor. no.3:64-68 '57. (MIRA 11:8)

1. Komissiya po spektroskopii AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

(Cyclopropane--Spectra) (Raman effect)

ALEKSANYAN, V.T.; STERIN, Kh.Ye.; LUKINA, M.Yu.; NAKHAPETYAN, L.A.

Raman spectra of various monoalkylcyclobutanes and cyclobutyl bromide. Fiz. sbor. no.3:68-71 '57. (MIRA 11:8)

1. Komissiya po spektroskopii AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Cyclobutane--Spectra)

AUTHOR GONIKSBERG N.G., ZHULIN V.M., ALEKSANYAN V.I., PA - 2917
STERIN Kh.E.

TITLE The polymerization of 2,3-Dimethylbutene - 2, 2,3-Dimethylbutene - 1 and 3,3-Dimethylbutene-1 at pressures up to 4.000 atm. (Issledovaniye polimerizatsii 2,3-dimetilbutena-2, 2,3-dimetilbutena-1 i 3,3-dimetilbutena-1 pri davleniyakh do 4.000 atmosfer - Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 1, pp 123 - 126 (U.S.S.R.)

Received: 6/1957 Reviewed: 7/1957

ABSTRACT In a previous paper it was shown that high pressure accelerates the polymerization of 2,3 dimethyl-butan-2 (henceforth referced as DMB) considerably. In the present paper the authors intended to study the cinetics of 2,3 DMB-2 and of related compounds at high pressure and to investigate the properties of the polymers. This reaction takes place gradually under a piessure of 3660-3680 atm and at a temperature of 290-292°C and passes through a dimer state (which has its maximum yield after about 16 hrs). The dimer fraction is able to undergo further polymerization. The degree of polymerization after 32 hrs is still low (9,1-17,7%). Under the same conditions 2,3-DMB-1 and 3,3-DMB-1 are polymerzated

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PA - 2917

The polymerization of 2,3-Dimethylbutene-2, 2,3-Dimethylbutene-1 and 3,3-Dimethylbutene-1 at pressures up to 4.000 atm.

two olefines, it appears that, in the case of the polymerization of the three hexames under consideration, as structural polymerization takes place. Without this process the formation of Cis-dalkylethylenes could not be expected. They predominate, however, in the dimer fraction. Moreover, the formation of monoalkylethylenes would not be imaginable without the assumption that in the case of the polymerization of 2,3 DMB-2 it is not the molecules or the radicals of the monomeres that are subjekt to a structural isomerozation, but dimer molecules or the radicals $C_{12}H_{23}$. Results show that the reaction of thermal polymerization accelerated by pressure is slowest in the case of 4-substituted ethylenes. This is apparently due to the important spatial difficulties under consideration. (With 3 tables and 5 citations from other publications.)

CARD 3/3

ASSOCIATION: Institute for Organic Chemistry "N.D. Zelinskiy" and the Commission for Spectroskopy of the Academy of Sciences of the USSR.

PRESENTED BY: B.A. KAZANSKIY.

SUBMITTED: 21.9. 1956.

AVAILABLE: Library of Congress.

SOV/62-58-8-11/22

AUTHORS: Gavrilova, A. Ye., Gonikberg, M. G., Aleksanyan, V. T., Sterin, Kh. Ye.

TITLE: The Investigation of the Homogeneous Destructive Tetralin Hydration at High Hydrogen Pressure (Issledovaniye gomogennogo destruktivnogo gidrirovaniya tetralina pri vysokikh davleniyakh vodoroda)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 981-989 (USSR)

ABSTRACT: The present paper is the continuation of a number of preliminary papers on the homogeneous destructive hydration of aromatic hydrocarbons at high hydrogen pressure. Among the various papers by other authors Darwent (Darwent, Ref 5) must be mentioned especially; he assumed that the compound of atomic alkyl benzene with the simultaneous formation of the unstable free radical is based on the last of several reactions. This radical then decomposes at the binding $C_{arom} \cdot C_{aliph}$. After further explanations of this process the authors mention that the break of the C - C bond in the binding of the hydrogen atom with the

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The Investigation of the Homogeneous Destructive Tetralin Hydration at High Hydrogen Pressure

carbon atom of the ring is to be assumed as probable. With respect to the break of the C - C bond and the processes connected with it it was of special interest to the authors to investigate the homogeneous destructive tetralin hydration. This hydration took place at 440-462°C and at up to 1200 atmospheres of absolute pressure. Based on the investigation of the reaction products by means of rectification methods and the taking of combination-dispersion spectra of light (as well as by means of kinetic data) the authors suggested a general scheme of the tetralin reactions on the conditions mentioned. The data obtained agree with the assumptions mentioned in the present paper with respect to the radical and chain mechanism of the homogeneous destructive hydration of aromatic hydrocarbons. There are 1 figure, 4 tables, and 17 references, 8 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo. Komissiya po spektroskopii pri OFMN Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR; Committee of Spectroscopy OFMN, AS USSR)

SOV/62-58-8-11/22

The Investigation of the Homogeneous Destructive Tetralin Hydration at High Hydrogen Pressure

SUBMITTED: January 25, 1957

Card 3/3

STERIN, Kh. Ye.

Study of shape and breadth of Roman spectrum lines. Trudy Fiz. inst. 9:13-58 '58. (MIRA 11:11)
(Raman effect)

AUTHORS: Kazanskiy, B. A., Lukina, M. Yu., Safonova, I. L., Aleksanyan, V. T., Sterin, Kh. Ye. SOV/62-58-10-24/25

TITLE: Letter to the Editor (Pis'ma redaktoru)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1958, Nr 10, pp 1230 - 1230 (USSR)

ABSTRACT: The authors succeeded for the first time to distribute 1,2-diphenyl cyclopropane and 1-phenyl-2-cyclopropyl cyclopropane to stereoisomers. The properties were: 1,2-diphenyl cyclopropane (cis-form); boiling point 131, 6-131, 7°, (4,8mm); melting point 36,7°; n_D^{20} 1,5887; d_4^{20} 1,0290. The trans-form: Boiling point 144,1-144,2° (5,2 mm); melting point 15,3°; n_D^{20} 1,5997; d_4^{20} 1,0346; 1-phenyl-2-cyclopropyl cyclopropane: cis-form: boiling point 100,2-100,5 (11 mm); n_D^{20} 1,5330; d_4^{20} 0,9574; trans-form: Boiling point 111,3-111,5° (13,8 mm); n_D^{20} 1,5371; d_4^{20} 0,9585. The spectra of the combination dispersion

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of both stereoisomer pairs were investigated and a considerable increase of the integral intensities of the characteristic bands of the benzene ring were found. This effect proves the presence of a considerable linkage of the phenyl nuclei with the 3-membered nucleus. This linkage is less intense in the spectra of the isomers with low boiling point. The authors explain this phenomenon by the presence of steric hinderances that disturb the situation favorable to the phenyl nuclei. There are 2 references, which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im.N.D.Zelinskogo Akademii nauk SSSR i Komissiya po spektroskopii pri Otdelenii fiziko-matematicheskikh nauk Akademii nauk SSSR (Institute of Organic Chemistry imeni N.D.Zelinskiy AS USSR and the Commission for Spectroscopy at the Department of Physical Mathematical Sciences AS USSR)

SUBMITTED: July 19, 1958

AUTHORS: Aleksanyan, V. T., Sterin, Kh. Ye., Mel'nikov, A. A., Plate, A F. SOV/48-22-9-16/40

TITLE: Raman Spectra of Some Unsaturated Cyclic Hydrocarbons (Spektry kombinatsionnogo rasseyaniya nekotorykh nepredel'nykh tsiklicheskikh uglevodorodov)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1073 - 1078 (USSR)

ABSTRACT: This paper is a report on the investigation of the Raman spectra of hydrocarbons with a double bond in the nucleus: 1-ethyl cyclopentene, 1-n-propyl cyclopentene-1, and 1-n-butyl cyclopentene (1. series), also of such compounds with a semicyclic double binding: ethylidene cyclopentane, n-propylidene cyclopentane and n-butylidene cyclopentane (2. series). It was also attempted to determine the correlation between the characteristic frequency of the C = C binding and the structural features of the olefines. The method which was used in the recording and in the measurement of the spectra were described already earlier (Refs 8,9). The spectra

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of the hydrocarbons of the first mentioned series are known already from pertinent publications (Refs 13,14). The spectra of cyclopentene and of 1-methyl cyclopentene-1 (Refs 7,14)(1.series) and of methyl cyclopentene (Ref 14) (2.series) represent a substantial supplement to existing information. The characteristic frequencies in the spectra of both series are given in tables 1 and 2. The qualitative considerations given in this respect are without doubt only of a preliminary nature and necessitate a comparison with further experimental and theoretical evidence. There are 3 tables and 24 references, 14 of which are Soviet.

ASSOCIATION: Laboratoriya Komissii po spektroskopii Akademii nauk SSSR (Laboratory of the Committee of Spectroscopy, AS USSR) Kafedra khimii nefti Moskovskogo gos. universiteta imeni M.V.Lomonosova (Chair of Petroleum Chemistry at the Moscow State University imeni M.V.Lomonosov)

STERIN, Kh. Ye.

21(0),24(0) PHASE I BOOK EXPLOITATION SOV/...

Akademiya nauk SSSR. Fizicheskiy institut

Issledovaniya po eksperimental'noy i teoreticheskoy fizike; [sbornik] (Studies on Experimental and Theoretical Physics; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; Eds. of Publishing House: A. L. Chernyak and V. G. Berkgaut; Tech. Ed.: Yu. V. Rylina; Commission for Publishing the Collection in Memory of Grigoriya Samuilovich Landsberg: I. Ye. Tamm (Chairman), Academician; M. A. Leontovich, Academician; P. A. Bazhulin, Doctor of Physical and Mathematical Sciences; S. L. Mandel'shtam, Doctor of Physical and Mathematical Sciences, I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences, F. S. Landsberg-Barysnanskaya, Candidate of Physical and Mathematical Sciences; and G. P. Motulevich (Secretary), Candidate of Physical and Mathematical Sciences.

PURPOSE: This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials.

COVERAGE: The collection contains 30 articles which review investigations in spectroscopy, sonics, molecular optics, semiconductor physics, nuclear physics, and other branches of physics. The introductory chapter gives a biographical profile of G. S. Landsberg, Professor and Head of the Department of Optics of the Division of Physical Technology at Moscow University, and reviews his work in Rayleigh scattering, combat gases, spectral analysis of metals, etc. No personalities are mentioned. References accompany each article.

Bazhulin, P. A., V. I. Malyshev, and M. M. Sushchinskiy. The Work of G. S. Landsberg in the Field of Molecular Spectroscopy 17

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Aleksanyan, V. T., Kh. Ye. Sterin, A. L. Liberman, I. M. Kuznetsova, N. I. Tyun'kina, and B. A. Kazanskiy. The Possibility of Establishing the Configuration of Stereoisomeric Dialkylcyclohexane on the Basis of a Combined Scattering Spectrum 43

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STERIN, Kh. Ye

LANDSBERG, Grigoriy Samuilovich, akademik [deceased]; KAZANSKIY, Boris Aleksandrovich, akademik; BAZHULIN, P.A., doktor fiziko-matemat. nauk; BULANOVA, T.F.; LIBERMAN, A.L., MIKHAYLOVA, Ye.A.; PLATE, A.F.; STERIN, Kh.Ye.; SUSHCHINSKIY, M.M.; TARASOVA, G.A.; UKHOLIN, S.A.; BRUSOV, I.I., red.izd-va; KASHINA, P.S., tekhn.red.

[Determination of the individual hydrocarbon composition of straight-run gasolines by the combined method] Opredelenie individual'nogo uglevodorodnogo sostava benzinov priamoi gonki kombinirovannym metodom. Moskva, Izd-vo Akad.nauk SSSR, 1959. 362 p. (MIRA 12:8)

(Gasoline)

GONIKBERG, M.G.; STERIN, Kh.Ye.; UKHOLIN, S.A.; OPEKUNOV, A.A.; ALEKSANYAN, V.T.

Producing Raman spectra at high pressures. Opt. i spektr. 6 no.1:109-110 Ja '59. (MIRA 12:3)
(Raman effect)

STERIN, Kh. Ye.

5 (3)

AUTHORS: Kazanskiy, B. A., Liberman, A. L., Loza, G. V., Kuznetsova, I. M., Aleksanyan, V. T., Sterin, Kh. Ye. SOV/62-59-6-13/36

TITLE: Catalytic Cyclization of n-Octane With Formation of the Homologs of the Cyclopentane (Kataliticheskaya tsiklizatsiya n.oktana s obrazovaniyem gomologov tsiklopentana)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 6, pp 1071 - 1076 (USSR)

ABSTRACT: By the action of a platinum catalyst n-octane forms the cyclic compounds: 1-methyl-2-ethylcyclopentane and n-propylcyclopentane. The present investigation dealt with the cyclization process and the spatial structure of the compounds produced by cyclization. For the purpose of this cyclization n-octane was for five hours passed through platinated coal with a passage rate of 0.2/hour at 310°. Two samples of the catalyst were used in parallel. In contrast to ramificated isomers cyclization of n-octane is fairly difficult. The yield on both catalysts was only 2.2 and 4.5%, respectively. The cyclic product could be enriched by distilling the catalysate. An investigation by means of the Raman spectrum showed that there was trans-1-methyl-2-

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ethylcyclopentene in the lower boiling fraction, and n-propylcyclopentene in the residue. The cis-form of the first mentioned compound could not be discovered. Apart from the compounds mentioned, there were still small quantities of 4-methylheptane to be observed. Furthermore, a line (762 cm^{-1}) was discovered, which was assigned to the pentalane bicyclo-[0,3,3]-octane. This could, however, not yet be proved owing to the difficulties that arise in the production of the pentalane. Since the Raman spectra of the two cyclic compounds obtained are yet hardly known, the single compounds were synthetized in pure form and plotted separately. The synthesis was carried out according to a method which was worked out in the institute mentioned in the Association, with the only difference that instead of aluminum oxide, silica gel was used for isomerisation. In the experimental part the production of the different substances is described in detail. The properties of and the yield in catalysates, obtained from n-octane, are compiled in table 1. Table 2 gives the data concerning the substances produced by distillation. When analysing the catalysates, distillates,

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and residues from n-octane it is shown that about the same portions are obtained for both compounds. There are 2 tables and 12 references, 10 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR i Komissiya po spektroskopii Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR, and Committee for Spectroscopy of the Academy of Sciences, USSR)

SUBMITTED: August 15, 1957

Card 3/3

AUTHORS: Gonikberg, M.G., Starin, Kh.Ya., Ukholin, S.A., Ovakimov, V.A. and Aleksanyan, V.T. SOV/51-6-1-21/30

TITLE: Production of the Raman Scattering Spectra at High Pressures (Polucheniye spektrov kombinatsionnogo rasseyaniya pri vysokikh davleniyakh)

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 1, pp 108-110 (USSR)

ABSTRACT: To obtain the Raman spectra at pressures up to 2500 kg/cm^2 the authors used apparatus shown in a figure on p 110. A scattering cell 1 consisted of two steel cylinders one on top of the other. The external diameter of the outer cylinder was 160 mm and the diameter of the cell proper was 20 mm. The substance placed in the cell was illuminated through three windows which were at right angles to the cell. These windows are marked 2 in the figure. A fourth window (marked 3) was used to observe the scattered light. Construction of the windows follow Bridgeman's technique described in Ref 5. The smallest diameter of the conical apertures at each window was 7 mm; the angle φ was 45°. The Raman spectra were excited with the blue line of mercury, λ = 4538 Å, produced by a PRK-type lamp. Three diaphragms (marked 5 in the figure) were used to cut out the light reflected by the internal walls of the

Card 1/2

Production of the Raman Scattering Spectra at High Pressures SOV/51-6-1-21/30

cell. A spectrograph ISP-51 was used to obtain the Raman spectra of toluene and isopropylbenzene at pressures of 1000 and 2000 kg/cm^2 at room temperature. The photographic plates were exposed for 4-6 hours. No displacement of the Raman frequencies of toluene and isopropylbenzene was observed at these two pressures. The apparatus described may be used also to obtain the Raman spectra of compressed gases. There are 1 figure and 5 references, 4 of which are English and 1 translation of an English work into Russian.

SUBMITTED: July 7, 1958

Card 2/2

SOV/51-7-2-5/34

AUTHORS: Aleksanyan, V.T., Sterin, Kh.Ye., Lukina, M.Yu., Safonova, I.L. and Kazanskiy, B.A.

TITLE: A Spectroscopic Investigation of the Effect of Mutual Orientation of Cyclopropane and Phenyl Rings on their Conjugation (Spektroskopicheskoye issledovaniye vliyaniya vzaimnoy oriyentatsii tsiklopropanovykh i fenil'nykh kolets na ikh sopryazheniye)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 2, pp 178-186 (USSR)

ABSTRACT: The paper describes results of the study of Raman spectra of stereoisomers of 1,2-diphenylcyclopropane and 1-phenyl-2-cyclopropylcyclopropane. These hydrocarbons were prepared following the technique described by Kizhner (Ref 4) and Smith and Rogier (Ref 16). Stereoisomers were separated out by fractional distillation under vacuo. The Raman spectra were recorded by means of a spectrograph ISP-51. The frequencies and intensities were measured following a technique described earlier (Ref 17). The frequency scatter did not exceed ±1 cm^{-1} and the intensity scatter was ± 10%. The integral intensities were determined by direct microphotometry of the line shape. The 802 cm^{-1} line in the spectrum of cyclohexane was used as a standard and its molar integral intensity was taken to be 500. The

Card 1/3

A Spectroscopic Investigation of the Effect of Mutual Orientation of Cyclopropane and Phenyl Rings on Their Conjugation

results obtained are tabulated on pp 180-1. The intensities of the lines at ~1200 and ~1600 cm^{-1} of the two compounds studied were stronger than those of alkyl benzenes; this indicates a strong conjugation of cyclopropane and phenyl rings. The conjugation is shown less clearly in the spectra of stereoisomers with lower boiling points. This is due to steric obstacles which prevent the most favourable arrangement of the phenyl rings with respect to the cyclopropane ring. Such steric obstacles exist only in cis-isomers. This circumstance was used to identify the cis- and trans-isomers of both hydrocarbons. For 1,2-diphenylcyclopropane the isomer with a boiling point of 131.6-131.7°C (4.8 mm Hg) and a freezing point of 36.7°C was identified as the cis-form, while the isomer with a boiling point of 144.1-144.2°C (5.2 mm Hg) and a freezing point of 15.3°C had the trans-form. The cis-isomer of 1-phenyl-2-cyclopropylcyclopropane had a boiling point of 100.2-100.5°C (at 11 mm Hg) and the trans-isomer

boiled at 111.3-111.5°C (at 13.8 mm Hg). There are 2 figures, 2 tables and 21 references, 9 of which are Soviet, 8 English, 1 French, 1 German, 1 translation from English into Russian and 1 from an international journal.

SUBMITTED: September 23, 1958

STERIN, Kh. Ye.

5 (4)

AUTHORS: Kazanskiy, B. A., Landsberg, G.S. (Deceased), SOV/62-59-9-15/40
Aleksanyan, V. T., Bulanova, T. A.,
Liberman, A. L., Mikhaylova, Ye. A., Plate, A. F., Sterin, Kh.Ye.,
Ukholin, S. A.

TITLE: Investigation of the Composition of the Fraction With a Boiling Point Between 150 and 250° of the Emba Crude Petroleum

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1612 - 1622 (USSR)

ABSTRACT: An attempt is being made to apply the combined investigation method for benzines (Ref 1) to the investigation of the petroleum fraction with a boiling point between 150 and 250° of the Emba crude petroleum. The petroleum investigated came from the Koschagylskoye deposit. It was proved that this fraction contains 12.6% of aromatic and 13.0% of hexahydroaromatic hydrocarbons. In the aromatic fraction 29 different hydrocarbons were identified. The quantitative division in groups of the aromatic hydrocarbons boiling in this range was carried out with characterisation of the arrangement of the side-chains on the benzene ring or the corresponding cyclohexane ring and that for the multicyclic according to the arrangement of the rings. By this method

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the authors succeeded in establishing the composition of the aromatic compounds up to 70% and that of the hydroaromatic compounds up to 46%. In the paraffin-naphthene part of the fraction the presence of naphthene with two different substituents in the same carbon atom of the cyclohexane could be established (mixed substitution). The limiting into narrower fractions was possible at the paraffin-naphthenes by investigating the specific gravities, the refractive index and the aniline point of these fractions. In figures 1 and 2 the paraffin-naphthene fractions are identified and tables 1-6 contain the results of the analysis. Table 7 gives the results of the distillation of the paraffin-cyclopentane fraction of the Ligroin applying the coefficient proposed by P. S. Maslov (Ref 11). There are 2 figures, 7 tables, and 11 references, 10 of which are Soviet.

Card 2/3

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR). Komissiya po spektroskopii Akademii nauk SSSR (Committee of Spectroscopy of the Academy of Sciences, USSR)

SUBMITTED: January 4, 1958

Card 3/3

24(7),11(4) SOV/48-23-10-2/39

AUTHORS: Aleksanyan, V. T., Sterin, Kh. Ye., Ukholin, S. A.

TITLE: The Analysis of Hydrocarbon Mixtures According to the Raman Spectra of Light

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 10, pp 1177-1178 (USSR)

ABSTRACT: Raman spectra are frequently used in the authors' laboratories for the purpose of analyzing natural hydrocarbon mixtures, especially gasoline fractions. The analytical investigations forming the subject of the present paper were carried out in close cooperation of the laboratory of the Komissiya po spektroskopii (Spectroscopy Commission) and the Laboratoriya kataliticheskogo sinteza Instituta organicheskoy khimii AN SSSR (Laboratory for Catalytic Synthesis of the Institute of Organic Chemistry of the AS USSR). The first part of this paper gives a short report on the catalytic cyclization of n-octane with formation of homologs of cyclopentane. In low-boiling fractions trans-1-methyl-2-ethyl cyclopentane (~1.4%) and in later fractions n-propyl cyclopentane (also ~1.4%) was found. Also 4-methyl heptane was found. In the spectrum of the distillation residue the line 762 cm^{-1} was found, which may be attributed to pentalane (which might have been

Card 1/2

produced by the second cyclization of n-propyl cyclopentane or 1-methyl-2-ethyl cyclopentane). The second part of the paper gives some details concerning the homogeneous destructive hydrogenation of tetralin at high hydrogen pressures. At pressures of up to 1200 atm and temperatures of 440-462° the hydrogenation was carried out. In the reaction products (with the boiling point of 136.1 - 183.9°) the following hydrocarbons were found: Ethyl benzene - 16%, isopropyl benzene - 9%, n-propyl benzene - 10%, secondary butyl benzene - 12%, n-butyl benzene - 43%, indan - 4%, α-methyl indan - 2 - 4%, as well as others the content of which amounts to less than 1%. In higher boiling fractions (185 - 190°) α-methyl indan was the main component, and further n-butyl benzene, β-methyl indan (5 - 10%) and trans-decalin (1 - 3%) was found. The scheme of hydrogenation and of the isomerization of tetralin is given. There are 1 figure and 3 Soviet references.

AUTHOR

SOV/62-60-1-15/37

AUTHORS: Alekasnyan, V. T., Sterin, Kh. Ye., Liberman, A. L., Lukina, M. Yu., Tayts, G. S., Tarasova, G. A., Terent'eva, Ye. M.

TITLE: Investigation of Hydrocarbons by Optical Method. XII. Raman Spectra of Some Hydrocarbons of Various Series

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, Nr 1, pp 84-89 (USSR)

ABSTRACT: The Raman spectra of the following hydrocarbons were studied: n-dodecane; 5,5-dimethylundecane; 1,1,2-trimethylcyclopropane; sec-butylcyclopentane, 2-cyclopentyloctane, n-propylcyclohexane, 1-methyl-2-ethylcyclohex-1-ene. Combination of the chemical and spectroscopic data confirm that 1,2-dialkylcyclohexan-1-ol on dehydration yields 1,2-dialkylcyclohexenes with double bond predominantly in position (I).

Card 1/2

Investigation of Hydrocarbons by Optical Methods. XII

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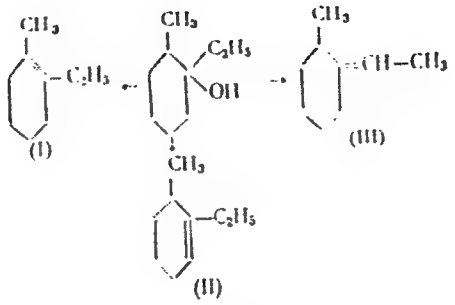
SOV/62-60-1-15/37



There are 20 references, 16 Soviet, 6 U.S., 4 German. The 5 most recent U.S. references are: Mosher, W. A., J. Am. Chem. Soc., 62, 552 (1940); Fenske, M. R., Anal. Chem., 19, 700 (1947); Signaigo, F. K., Cramer, P. L., J. Am. Chem. Soc., 55, 3626 (1933); Foehr, F. G., Fenske, M. R., Industr. and Engng. Chem., 41, 1956 (1949); Kelso, R. G., Greenlee, K. W., Derfer, J. M., Boord, C. E., J. Am. Chem. Soc., 74, 287 (1952).

Card 3/3

Investigation of Hydrocarbons by Optical Method. XII

(80c9)
SOV/68-60-1-15/37

ASSOCIATION: N. D. Zelinskiy Institute of Organic Chemistry of the Academy of Sciences of the USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: May 30, 1958

Card 3/3

3

69037

5 3100

S/051/60/008/03/006/038
E201/E191

AUTHORS: Aleksanyan, V.T., Sterin, Kh.Ye., Mel'nikov, A.A. and Plate, A.F.

TITLE: Raman Spectra of 1,2-dialkylcyclopentane Stereoisomers

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 3, pp 324-327 (USSR)

ABSTRACT: The authors investigated the Raman spectra of stereoisomers of three 1,2-dialkylcyclopentanes:
1-ethyl-2-n-propylcyclopentane (I);
1-ethyl-2-n-butylcyclopentane (II);
1,2-di-n-butylcyclopentane (III).
The methods of preparation and recording of the spectra were as described earlier (Ref 3). It was found that the Raman spectra had certain features which could be used to identify reliably the type of the stereoisomer. These features were lines in the regions 1133-1147 cm^{-1} and 885-910 cm^{-1} in the spectra of the isomers with lower boiling points, and lines in the regions 1107-1120, 1144-1160 and 882-893 cm^{-1} in the spectra of the isomers with higher boiling points. The isomers with the lower boiling points (72.9, 91.0 and 122.6 °C for I, II and III

Card 1/2

respectively) had cis-structure.
There are 1 table and 6 Soviet references.

Card 2/2

SUBMITTED: May 14, 1959

5(3)

S/020/60/130/03/019/065
B011/B016

AUTHORS: Kazanskiy, B. A., Academician, Nakhapetyan, L. A., Aleksanyan, V. T., Sterin, Kh. Ye., Podkhalyuzin, A. T.

TITLE: Dehydration of Dimethyl-cyclopentyl-carbinol in the Presence of Sulfuric Acid

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 3, pp 552-555 (USSR)

ABSTRACT: The authors carried out the reaction mentioned in the title with 0.1% concentrated H_2SO_4, in order to clarify in what way a five-membered ring acts on the course of the reaction. The reaction conditions were the same as in one of their previous papers (Ref 1). The authors also this time obtained a mixture of unsaturated hydrocarbons, from which the following individual hydrocarbons were separated by distillation: isopropyl-cyclopentene-1, isopropenyl-cyclopentane (produced for the first time), and isopropylidene-cyclopentane. Herefrom the authors conclude that the reaction had proceeded according to the scheme (cf Fig). The structure of the separated compounds was

Card 1/3

confirmed by the agreement of the constants of two of them with data available in publications. The Raman spectra offered further proof of their structure. While the present investigation was being carried out, a paper by G. Chiurdoglu and S. Van Walle (Ref 4) was published, who investigated the dehydration of cyclic carbinols by distillation with 0.01% H_2SO_4.

The authors carried out the reaction mentioned in the title also under these conditions. By means of the Raman spectra of the dehydration products they found that with 0.01% H_2SO_4 also a mixture of isopropyl-cyclopentene-1, isopropenyl-, and isopropylidene-cyclopentane results. The quantitative ratio of these components, however, varies according to the quantity of H_2SO_4. With increasing quantity the content of isopropenyl-cyclopentane decreases from 68-63% to 40-35%. At the same time, the quantity of the other two hydrocarbons increases. Also the yield of dehydration products increases from 66% to 91%. Thus, the results obtained by the authors are not in agreement with those of reference 4. The authors point out that the constants

Dehydration of Dimethyl-cyclopentyl-carbinol in the Presence of Sulfuric Acid

S/020/60/130/03/019/065
B011/B016

of isopropenyl-cyclobutane and isopropenyl-cyclopentane of reference 4 deviate considerably from those obtained by themselves. They assume that in reference 4 no individual hydrocarbons, but mixtures of unsaturated hydrocarbons with a different position of the double bond were under consideration. There are 1 figure, 1 table, and 5 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: November 13, 1959

Card 3/3

S/020/60/131/06/40/071
B004/B007

AUTHORS: Aleksanyan, V. T., Sterin, Kh. Ye.

TITLE: Orientation of the π-Electron Cloud in the Cyclopropane Ring

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 131, No. 6, pp. 1373 - 1375

TEXT: The authors investigated the conjugation of π-bonds on 1,2-diphenyl- and 1-phenyl-2-cyclopropyl-cyclopropane by means of the Raman spectrum (Refs. 1,2). The question remained unanswered as to whether the cis-form had the configuration A or B (Fig. 1). This has now been clarified by investigating the Raman spectrum of 1,1-diphenyl-cyclopropane. In this compound only configuration A is possible for stereochemical reasons. This is proved by comparing the intensity of the 1600 cm^{-1} line of the Raman spectra (Table 1) of various phenyl-cyclopropanes. The relatively low conjugation between cyclopropane- and phenyl ring in this compound is confirmed also chemically. Among all diphenyl-cyclopropanes investigated, 1,1-diphenyl-cyclopropane has the lowest hydrogenation rate under cleavage of the three-membered ring. The 1,1-diphenyl-cyclopropane spectrum has the intensive line of valence oscillations of C-H-bonds at 3005 cm^{-1}, which is characteristic

Card 1/2

of the cyclopropane ring. There are 1 figure, 1 table, and 8 references, 4 of which are Soviet.

ASSOCIATION: Komissiya po spektroskopii pri Otdelenii fiziko-matematicheskikh nauk Akademii nauk SSSR (Commission on Spectroscopy at the Department of Physical and Mathematical Sciences of the Academy of Sciences, USSR)

PRESENTED: January 4, 1960, by B. A. Kazanskiy, Academician

SUBMITTED: December 25, 1959

KAZANSKIY, B.A., akademik; LIBERMAN, A.L.; KUZNETSOVA, I.M.; ALEKSANYAN, V.T.; STERIN, Kh.Ye.; LOZA, G.V.

C_6-Dehydrocyclization of alkyl cyclopentanes into bicyclic hydrocarbons. Dokl.AN SSSR 133 no.2:364-366 Jl '60. (MIRA 13:7)

1. Institut organicheskoy khimii im. N.D.Zelinskogo Akademii nauk SSSR i Komissiya po spektroskopii Akademii nauk SSSR.
(Cyclopentane) (Cyclization)

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S/020/60/133/005/032/034/XX
B016/B060

AUTHORS: Kazanskiy, B. A., Academician, Shokova, E. A., Khromov, S. I., Aleksanyan, V. T., and Sterin, Kh. Ye.

TITLE: Contact Conversions of Cyclooctane in the Presence of Platinized Coal

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 5, pp. 1090 - 1093

TEXT: The authors wanted to find out the behavior of polymethylenes of average ring size on platinized coal at lower temperatures than those applied by V. Prelog (Ref. 1). Moreover, they wanted to repeat the incomplete work of N. D. Zelinskiy and G. I. Freyman (Ref. 3). According to the latest notions, cyclooctane can principally exist in two most stable forms:


(I)


(II)

Card 1/3

The amount of (II) in cyclooctane is probably very small. In the centro-symmetric form (I), the four equatorial hydrogen atoms are placed higher than the central ring plane, whereas other four of them are placed below this plane. When any pair of these atoms in 1,5-position separates, the transannular C-C bond may form and cis-bicyclo-(0,3,3)-octane-(cis-pentalane) may result. In this work, the authors examined the conversions of cyclooctane on platinized coal at 310° in the presence and in the absence of hydrogen. A quantitative conversion of cyclooctane took place in both cases. In the absence of hydrogen, cis-bicyclo-(0,3,3)-octane-(cis-pentalane) developed in an amount of about 51 wt% of the catalyzate. Appreciable amounts were also obtained of trans-1-methyl-2-ethyl cyclopentane (about 23%) and n-propyl cyclopentane (about 20%), as well as smaller amounts (about 6%) of 4-methyl heptane. Basing on the reaction products, the authors set up a scheme of this reaction. Apparently, the first stage is the formation of cis-pentalane which then undergoes hydrogenolysis under the action of the resulting hydrogen. Trans-1-methyl-2-ethyl cyclopentane and n-propyl cyclopentane thus result. 4-methyl-1-heptane is formed by the hydrogenolysis of the latter. The same substances were formed in the presence of hydrogen, but the quantitative proportion was different. This

Card 2/3

is explained by a more intense hydrogenolysis of the five-membered ring in the presence of hydrogen. At the same time, the hydrogenolysis of pentalane and n-propyl cyclopentane takes place more smoothly than that of 1-methyl-2-ethyl cyclopentane. The authors were not able to detect methyl cycloheptane in the reaction products (as conversely stated in Ref. 3). About 1 - 2% of aromatic hydrocarbons were obtained: toluene, ethyl benzene, and o-xylene. Tables 1 - 4 collect the results of distillation, the individual fractions together with their constants, and the quantitative proportions of the resulting substances. They were determined from the Raman spectra (monograph by G. S. Landsberg, B. A. Kazanskiy, and others, Ref. 9) of the fractions. A paper by A. L. Liberman and others (Ref. 10) is mentioned. There are 4 tables and 11 references: 6 Soviet, 3 US, 1 Swiss, and 1 French.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov). Komissiya po spektroskopii Akademii nauk SSSR (Commission for Spectroscopy of the Academy of Sciences USSR)

SUBMITTED: May 11, 1960

Card 3/3

STERIN, KH, YE.

S/020/60/135/002/022/036
B076/B052

AUTHORS: Kazanskiy, B. A., Academician, Khristo, S. I., Liberman, A. L., Balenkova, Ye. S., Vasina, T. V., Aleksanyan, V. T., and Sterligov, [illegible]

TITLE: Contact Transformations of Cyclodecane in the Presence of Platinized Charcoal

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 2, pp. 327 - 330

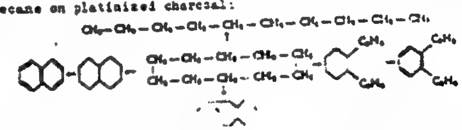
TEXT: The authors studied the following problem: Hitherto (Refs. 1,2) it has been stated that cyclodecane on platinized charcoal is directly transformed into azulene. In connection with the C_5 dehydrocyclization (Ref. 4) which has been discovered in the meantime, the question arose whether the formation of azulene is a secondary process, while decahydroazulene is formed in the main reaction (transannular C_5 dehydrocyclization) and yields azulene by dehydrogenation. To prove this reaction, cyclodecane was catal[illegible] on platinized charcoal (5 and 20% Pt)

Card 1/4

at 300 and 310°C and without tear gas. It was shown that the major part of cyclodecane is transformed. After rectification, the catalyzates were chromatographed on silica gel, and their Raman spectra were studied. The catalyzates proved to be complicated mixtures containing aromatic, paraffin, mono-, and bicyclic naphthene hydrocarbons. Naphthalene and o-diethyl benzene were found to be most important. Small amounts of m-methyl indan, n-butyl benzene, indan, and o-ethyl benzene were detected. Approximately equal amounts of n-decane, cis decahydroazulene, and 1,2-diethylcyclohexane, a small amount of trans-decalin, and a hydrocarbon of unknown spectrum were detected in the paraffin - naphthene part. The formation of decalin and naphthalene is obviously the result of transannular C_6 dehydrocyclization, while decahydroazulene is obtained from cyclodecane by C_5 dehydrocyclization. This indicates that C_5 and C_6 dehydrocyclizations are caused not only by the closure of open chains, but may also occur within a cycle while bicyclic systems are formed. Thus, n-decane can only have formed in the catalyzate by cleavage of the ten-membered cycle. Since hydrogenolysis has been

Card 2/4

achieved only in cycles with no more than 5 hydrocarbon atoms, this observation is of fundamental importance. Hitherto, the formation of o-diethyl benzene and 1,2-diethyl cyclohexane has not been explained. It is pointed out that none of the traditional reactions can be used to explain this observation. The following reaction scheme is suggested for cyclodecane on platinized charcoal:



The remaining hydrocarbons detected in the catalyzate were probably formed by secondary transformations. There are 4 tables and 9 references: 6 Soviet, 2 US, and 1 Swiss.

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Contact Transformations of Cyclodecane in the Presence of Platinized Charcoal

S/020/60/135/002/020/036
B016/B052

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova (Moscow State University imeni M.V. Lomonosov). Komissiya po spektroskopii Akademii nauk SSSR (Commission of Spectroscopy of the Academy of Sciences USSR). Institut organicheskoy khimii im. N.D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences USSR)

SUBMITTED: July 28, 1960

Card 4/4

LANDSBERG, G.S., akad. [deceased]; MAYANTS, L.S., doktor fiziko-matem. nauk; BATUYEV, M.I., doktor khim. nauk; BARYSHANSKAYA, F.S., kand. fiziko-matem. nauk; STERIN, Kh.Ya., kand. fiziko-matem. nauk; ARANOVICH, P.M., kand. khim. nauk; BYALOVA, V.V., mlad. nauchnyy sotr.; ROTKOVA, S.V., mlad. nauchnyy sotr.; RABINOVICH, N.Ya., mlad. nauchnyy sotr.; BERK-GAUT, V.G., red. izd-va; GOLUB', S.P., tekhn. red.

[Scattering of light and infrared spectroscopy; bibliographic index for 1928-1940] Rasseianie sveta i infrakrasnaia spektroskopiia; bibliograficheskii ukazatel' 1928-1940. Moskva, Izd-vo Akad. nauk SSSR, 1961. 451 p. (MIRA 14:11)

1. Akademiya nauk SSSR. Komissiya po spektroskopii. Sektor seti spetsial'nykh bibliotek.
(Light--Scattering--Bibliography) (Spectrum, Infrared--Bibliography)

ALEKSANYAN, V.T.; STERIN, Kh.Ye.; UKHOLIN, S.A.; BRAGIN, O.V.; LIBERMAN, A.L.; MIKHAYLOVA, Ye.A.; SMIRNOVA, E.N.; TYUN'KINA, N.I. KAZANSKIY, B.A.

Raman spectra of certain hydrocarbons of the benzene series havong one or two side chains. Izv. AN SSSR. Otd.khim.nauk no.8:1437-1443 Ag '61. (MIRA 14:8)

1. Komissiya po spektroskopii AN SSSR i institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Hydrocarbons—Spectra)

STERIN, Kh.Ye.; ALEKSANYAN, V.T.; UKHOLIN, S.A.; BRAGIN, O.V.; GAVRILOVA, A.Ye.; ZOTOVA, S.V.; LIBERMAN, A.L.; MIKHAYLOVA, Ye.A. SMIRNOVA, E.N.; STERLIGOV, O.D.; KAZANSKIY, B.A.

Raman spectra of some tri- and tetraalkylbenzenes and condensed aromatic hydrocarbons. Izv. AN SSSR. Otd.khim.nauk no.8:1444-1450 Ag '61. (MIRA 14:8)

1. Komissiya po spektroskopii AN SSSR i Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.
(Benzene--Spectra)
(Hydrocarbons--Spectra)

S/020/61/136/005/019/032
B103/B208

AUTHORS: Khromov, S. I., Shokova, E. A., Sterin, Kh. Ye., and B. A. Kazanskiy, Academician

TITLE: Contact conversions of cyclooctane in the presence of a nickel catalyst

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1112-1115

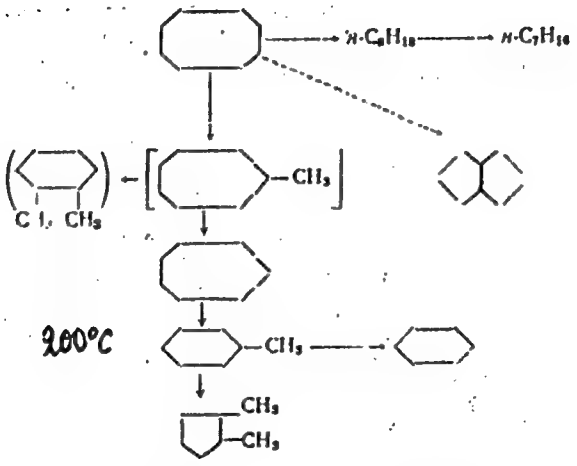
TEXT: The authors studied the conversions of cyclooctane on a catalyst consisting of 50% nickel on kieselguhr, a) at 250°C, and b) at 250°C in an intense hydrogen stream. In case a) ~ 61% of cyclooctane was converted, in case b) ~ 81%. The composition of the fractions obtained by distillation of the final catalyzates was studied by means of Raman spectra (methods described previously in Ref. 7). The authors concluded from the results that three processes take place at the rather mild temperatures applied: 1) hydrogenolysis of the 8-membered ring giving n-octane (in analogy to an identical process with substances with smaller rings, Refs. 2-5), which was detected for the first time by the

Contact conversions of cyclooctane ...

authors; 2) a transannular dehydrogenation which yields cis-pentalane, and 3) a stepwise isomerization of cyclooctane to compounds with 7-, 6-, and 5-membered rings. At 200°C, the following compounds were formed: n-heptane, cyclohexane, methyl cyclohexane, cyclopentane, and cis-1,2-dimethyl cyclopentane. The latter may be formed as a result of the afore-mentioned isomerization. About 46.5 wt% fall to the share of the unreacted cyclooctane. Very small quantities of cis-bicyclo-(0,3,3)-octane-(cis-pentalane) were also found. On the basis of these results the authors suggested the reaction scheme at 200°C.

S/020/61/136/005/019/032
B103/B208

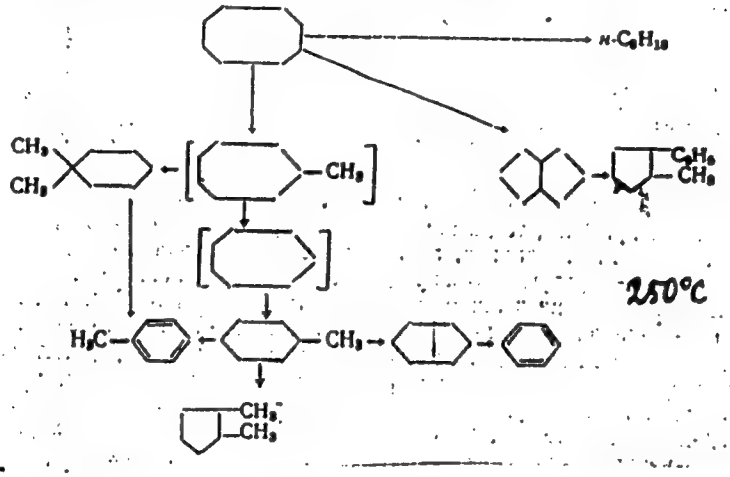
Contact conversions of cyclooctane ...



Card 3/6

Contact conversions of cyclooctane ...

The catalyzate consisted at 250°C of ~ 8 wt% of cis-pentalane, ~ 11% toluene, and ~ 2% benzene (apart from the unreacted cyclooctane). Besides, the following compounds were obtained: methyl cyclohexane, cyclohexane, cis-1,2-dimethyl cyclopentane, and gem-dimethyl cyclohexane.



Card 4/6

Contact conversions of cyclooctane ...

The reaction temperature was found to play an important part in the quantitative interrelation of the afore-mentioned three processes at 200 and 250°C. Marked hydrogenolysis of cyclooctane occurs only at 200°C, and practically ends at 250°C. The formation of pentalane, on the other hand, is characteristic mainly of 250°C. The ring isomerization which is accompanied by hydrocracking takes place both at 200 and 250°C, but is in addition complicated at 250°C by an aromatization of hexamethylene hydrocarbons. The authors assume that small quantities of cis-1,2-dimethyl cyclopentene are formed at 250°C owing to competitive processes: from methyl cyclohexane, the latter compound is formed on the one hand, benzene and toluene on the other hand, with the equilibrium being shifted toward the latter two. No aromatization occurs at 200°C. The transannular dehydrogenation of cyclooctane to cis-pentalane, and the isomerization of the hydrocarbons also take place on platinized carbon, but at a higher temperature (310°C, Refs. 6,7). The experiments of the authors showed that this does not apply to cyclooctane at 200-250°C. There are 4 tables and 8 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

S/020/61/136/005/019/032
Contact conversions of cyclooctane ... B103/B208

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University imeni M. V. Lomonosov)

SUBMITTED: November 11, 1960

Card 6/6

MIRZAYEVA, A.K.; YELAGINA, N.V.; STERIN, Kh.Ye.; KAZANSKIY, B.A.

Catalytic conversions of spiro (4,5)decane on a platinum catalyst. Neftekhimia 2 no.1:31-36 Ja-F '62. (MIRA 15:5)

1. Moskovskiy gosudarstvennyy universitet, kafedra khimii nefti, i Komissiya po spektroskopii AN SSSR.
(Spirodecane) (Catalysts, Platinum)

BALENKOVA, Ye.S.; KHROMOV, S.I.; SHOKOVA, E.A.; KUCHERYAVAYA, N.N.; STERIN, Kh.Ye.; KAZANSKIY, B.A.

Catalytic conversions of cycloheptane. Neftekhimiia 2 no.3: 275-279 My-Je '62. (MIRA 15:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova i Komissiya po spektroskopii AN SSSR.
(Cycloheptane) (Catalysis)

SHOKOVA, E.A.; KHROMOV, S.I.; BALENKOVA, Ye.S.; BOBROV, A.V.; STEIN, Kh.Ye.; KAZANSKIY, B.A.

Catalytic conversions of cyclononane and cyclodecane in the presence of nickel catalyst. Neftekhimiia 2 no.3:280-287 My-Je '62. (MIRA 15:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova i Komissiya po spektroskopii AN SSSR.
(Cyclononane) (Cyclodecane) (Nickel catalysts)

KORITSKIY, V.; STERIN, Kh. [illegible]

Fourteenth Conference on Spectroscopy. Opt.i spektr. 12 no.5:662-664 My '62. (MIRA 15:5)
(Spectroscopy--Congresses)

STERIN, Kh.Ye.; ALEKSANYAN, V.T.

Investigation of the composition of products of catalytic transformations of hydrocarbons based on Raman spectra. Izv. AN SSSR Ser. fiz. 26 : no.10:1319-1320 O '62. (MIRA 15:10)
(Hydrocarbons) (Catalysis) (Spectrum analysis)

S/020/62/144/001/010/024
B104/B102

AUTHORS: Bobrov, A. V., Sterin, Kh. Ye., and Sobolev, Ye. V.

TITLE: Depolarization degree of Raman spectrum lines of hydrocarbons with conjugate double bonds

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 144, no. 1, 1962, 81-84

TEXT: The degree ρ of depolarization of the $\Delta\nu_s$(C=C) lines (symmetric stretching vibrations) of hydrocarbons was measured by means of a photographic equipment with an inclined illuminator. The polarized component was separated with an Osipov prism (Ya. S. Bobovich, M. V. Vol'kenshteyn, Izv. AN SSSR, ser. fiz., 12, 553 (1948)). Known lines of benzene, cyclohexane, and CCl_4 were used as reference lines. The ratio between the components of the $\alpha^{*'}$ tensor is assumed to be equal in cis- and trans-bonds (Fig. 1). Taking account of the axial symmetry of $\alpha^{*'}$, the ratio $\alpha_1^{*'}/\alpha_3^{*'} = (1-\sqrt{5\rho/(6-7\rho)})/(2\sqrt{5\rho/(6-7\rho)}+1)$ is calculated

Card 1/2

from the -values of trans-isomers of one conjugate C=C bond, and ρ of cis-isomers is calculated from this ratio. From ρ-values of trans-isomers of butadiene-1,3 and hexadiene-2,4 the ρ-values of the cis-isomer of these hydrocarbons were calculated in the above way. The results agree well with measurements of cyclopentadiene-1,3 and cycloheptadiene-1,3. There are 2 figures and 1 table.

ASSOCIATION: Komissiya po spektroskopii Akademii nauk SSSR
(Commission of Spectroscopy of the Academy of Sciences USSR)

PRESENTED: December 14, 1961, by I. V. Obreimov, Academician

SUBMITTED: December 12, 1961

BOEROV, A.V.; STERIN, Kh.Ye.

Spectroscopic study of the mutual orientation of phenyl rings in biphenyl molecules. Opt. i spektr. 15 no.1:130-131 Jl '63. (MIRA 16:8)

(Biphenyl—Spectra)

[illegible], G.N.; [illegible], M.Ye.; [illegible]'YAN, V.T.; VA[illegible], Ye.V.; [illegible]'MAN, A.I.

Configuration of stereoisomers in a series of cis- and trans-1-methyl-3-n. alkylcyclohexanes. Neftekhimiia 4 no.2: 219-224 Mr-Ap'64 (MIRA 17:8)

1. Komissiya po spektroskopii AN SSSR i Institut organicheskoy khimii AN SSSR imeni N.D. Zelinskogo.

YELAGINA, N.V.; LINCAYEVA, A.K.; STEPIN, Kh.Ye.; BOBROV, A.V.; KAZANSKIY, B.A.

Catalytic conversion of spiro-(5,6)-dodecane on a platinum catalysts. Neftekhimiia 4 no.2:241-245 Mr-Ap'64 (MIRA 17:8)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

MIRZAYEVA, A.K.; YELAGINA, N.V.; STERIN, Kh.Ye.; BOBROV, A.V.; KAZANSKIY, B.A.

Catalytic conversions of n-amyl benzene on a platinum catalyst.
Neftekhimia 4 no.3:417-420 My-Je '64. (MIRA 18:2)

1. Kafedra khimii nefti Moskovskogo gosudarstvennogo universiteta i Komissiya po spektroskopii AN SSSR.

L 51812-65 EWT(m)/EPF(c)/EPR/EWP(j)/T/ Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5017011 UR/0204/64/004/006/0819/0823

34
19
B

AUTHOR: Plate, A. F.;Gusar', N. I.; Belikova, N. A.; Sterin, Kh. Ye.

TITLE: Hydrogenolysis and pyrolysis of bicyclo-(3,2,0)-heptane

SOURCE: Neftekhimiya, v. 4, no. 6, 1964, 819-823

TOPIC TAGS: heptane, hydrogenation, pyrolysis, catalysis, cyclic group

ABSTRACT: Hydrogenolysis of bicyclo-(3,2,0)-heptane on platinized charcoal begins at 100° and goes almost to completion at 150°, forming ethylcyclopentane (49%), cycloheptane (44%), and trans-1,2-dimethylcyclopentane (7%). In the presence of nickel-on-kieselguhr, complete hydrogenolysis of bicyclo-(3,2,0)-heptane takes place at 110°, resulting in the formation of ethylcyclopentane (50%), cyclopentane (20%), and trans-1,2-dimethyl-cyclopentane (28%). The carrier, kieselguhr, does not catalyze the conversion of bicyclo-(3,2,0)-heptane. Formation of the trans-isomer of 1,2-dimethylcyclopentane was explained by conversion of the cis-isomer originally formed, at the reaction temperature. In a study of the behavior of bicyclo-(3,2,0)-heptane under conditions of catalytic isomerization on platinized charcoal (in the absence of hydrogen), the hydrocarbon remained stable up to 250°, and cleavage of the cyclobutane

Card 1/2

L 51812-65

ACCESSION NR: AP5017011

ring occurred to an extent of only 14% at 350°. In the absence of a catalyst, pyrolysis does not begin at temperatures below 450°; at 500°, bicyclo-(3,2,0)-heptane is 15% decomposed, while at 550° the decomposition goes to completion. The pyrolysis products at 500°, after hydrogenation, contained the initial hydrocarbon, 6-7% cyclopentane, and 7-8% n-heptane. The pyrolyzate obtained at 550° represented a complex mixture: after hydrogenation, n-pentane, isopentane, cyclopentane, n-heptane, trans-1,2-dimethylcycloheptane, ethylcyclopentane, a few aromatic compounds, and the initial bicyclo-(3,2,0)-heptane were found; the gas formed in the decomposition contained 80% ethylene and an admixture of methane and hydrogen. Orig. art. has: 2 formulas, 3 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University); Komissiya po spektroskopii AN SSSR (Spectroscopy Commission, AN SSSR)

SUBMITTED: 12Jun64 ENCL: 00 SUB CODE: OC, GC

NO REF SOV: 006 OTHER: 002 JPRS

Card 2/2

L 12907-65 EWT(l)/EEC(t) IJP(c)/AFWL/AS(mp)-2/RAEM(a)/ESD(gs)/ESD(t)

ACCESSION NR: AP4047175 S/0051/64/017/004/0532/0537

AUTHORS: Bobrov, A. V.; Sterin, Kh. Ye.

TITLE: Comparison of line intensity in Raman spectra of powders

SOURCE: Optika i spektroskopiya, v. 17, no. 4, 1964, 532-537

TOPIC TAGS: Raman spectrum, line intensity, powder, hyposulfite, urea, Rochelle salt, naphthalene, stilbene

ABSTRACT: The behavior of the intensities of Raman scattering lines of colorless powders was investigated in transmitted light. The substances investigated were hyposulfite, urea, Rochelle salt, naphthalene, stilbene, and tolane. The substances were pulverized and sifted to make sure that the fractions are within equal limits. The powders were placed in a special cuvette in the form of a hollow cone. The contours of the measured Raman line and of the attenuated excited line (λ = 4358 Å) were recorded with a DFS-12 spectrometer.

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L 12907-65
ACCESSION NR: AP4047175

The measure of the intensity was the ratio

$$I = \frac{J_p}{TJ_B} = \frac{S_p}{S_B}.$$

where T -- transmission coefficient of the attenuating optical filter, S_p -- area under the contour of the Raman scattering line, and S_B -- area under the contour of the attenuated exciting line. The ratios I of lines of any two substances taken for identical powder fraction dimensions and other equal conditions turned out to be equal, within the measurement accuracy. The ratios I of the lines of two elements obtained from the spectra of powders and from spectra of solid blocks were also practically the same. It is therefore concluded that the values of I can be used for a comparison of the intensity of lines in spectra of powders which are not mixed with each other. It was also found that the intensity of the Raman lines in binary mixtures of powders is proportional to the concentrations of the components. Tests based on the use of a mixture of components are as compared with those using unmixed components

Card 2/3

L 12907-65
ACCESSION NR: AP4047175

(method of internal standard vs. method of external standard). Orig. art. has: 2 figures, 5 formulas, and 4 tables.

ASSOCIATION: None

SUBMITTED: 06Dec63 ENCL: 00

SUB CODE: OP NR REF SOV: 003 OTHER: 006

Card 3/3

BOBROV, A.V., STERIN, Kn.Ye.

Spectroscopic study of the change in conjugation due to the transition from the crystalline to the liquid state. Opt. i spektr. 17 no.4:625-626 O '64. (MIRA 17:12)

[illegible]NOVA, N.A.; PLATE, A.F.; TALKINA, G.N.; STERIN, Kh.Ye.; LUKASHINA, V.M.; PAKHOMOV, V.P.; DERESKIN, V.G.

Isomeric transformations of unsaturated hydrocarbons of the bicyclo (2,2,1) heptane series in the presence of calcium amide and an aluminochromium catalyst. Zhur.org.khim. 1 no.3:506-513 Mr '65. (MIRA 18:4)

1. Moskovskiy gosudarstvennyy universitet, Institut neftekhimicheskogo sinteza AN SSSR i Komissiya po spektroskopii AN SSSR.

STERIN, Kh.Ye.; BOBROV, A.V.; ZHIZHIN, G.N.

Low-frequency vibration of cyclohexane. Opt. i spektr. 18 no.5:904-905 My '65. (MIRA 18:10)

ZHIZHIN, G.N.; STERIN, Kh.Ye.

Infrared absorption spectra of cyclohexane and its symmetrically substituted at low temperatures. Opt. i spektr. 19 no.1:55-64 Jl '65. (MIRA 18:8)

LIBERMAN, A.L.; LERMAN, B.M., ZHIZHIN, G.N.; STERIN, Kh.Ye.

Sequence of the boiling points of stereoisomeric 1-methyl- and 1-ethyl-4-tert-butylcyclohexanes. Dokl. AN SSSR 156 no. 2:375-378 My '64. (MIRA 17:7)

1. Institut organicheskoy khimii imeni Zelinskogo AN SSSR. Predstavleno akademikom B.A.Kazanskim.

ZHIZHIN, G.N.; STERIN, Kh.Ye.; ALEKSANYAN, V.T.; LIBERMAN, A.L.

Spectroscopic investigation of the space configuration of dialkylcyclohexanes. Part 1: Spectral sign of cis-trans isomerism. Zhur.strukt.khim. 6 no.5:684-690 S-O '65.
(MIRA 18:12)

1. Komissiya po spektroskopii AN SSSR i Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR. Submitted April 5, 1965.

LAPSHIN, N.P.; CHELNOKOVA, L.M., inzhener; YEFIMOV, A.A., nachal'nik lentochno-rovnichnogo tsekha; STERIN, L.I.; RATOV, N.S.; NOVIKOV, N.V.; KABANOVA, Ye.V.; BASHKER, A.F.; KLEYENKINA, L.G.; IVANOV, N.Ye.; YUSHAKOV, A.N., inzhener.

Readers' efficiency suggestions. Tekst.prom.17 no.1:37-43 Ja '57. (MLRA 10:2)

1. Fabrika "Krasnaya Talka (for Chelnokova). 2. Prepodavatel' Morshanskogo tekstil'nogo tekhnikuma (for Sterin). 3. Nachal'nik otdel'nogo tsekha Shuyskoy ob"yedinennoy fabriki (for Ivanov).

(Textile industry)

STERIN, Ya.I.; DISMAN, Ye.M., inzh.

Machine for unwinding, straightening and laying of tubular knit fabrics. Tekst.prom. 25 no.1:51 Ja '65.

(MIRA 18:4)

1. Nachal'nik nauchno-issledovatel'skogo sektora tresta "Promtekhmontazh" Ministerstva stroitel'stva Latviyskoy SSR (for Sterin).

GINZBURG, Zinoviy Borisovich; TSETLIN,A.M., redaktor; NADBAKH,M.P., retsenzent; STERIN,Ye.M., retsenzent; PITERMAN,Ye.L., redaktor; KOLESNIKOVA,A.P., tekhnicheskiy redaktor;

[Movable electric power stations] Peredvizhnye elektrostantsii. Moskva, Goslesbumizdat, 1955. 254 p. (MLRA 9:2)
(Electric power plants)

VEYTSER, Yu.I., KOLOBOVA, Z.A.; STERINA, R.M.

Mechanism of the flocculating action of industrial polyacrylamide. Nauch. trudy AKKH no.22:19-36 '63. (MIRA 18:5)

VEYTSER, Yu.I., kand. khim. nauk; STEKLOVA, L.M., inzh.

Cation flocculants for drinking water purification. Vod. i san. tekh. no.9:14-16 S '69. (MIRA 12:9)

Sterina, Ye. Z.

Bernovskaya, F. I., Skarre, O. K., Moskalenskaya, E. Ya. and Sterina, Ye. Z. - "The study of the mechanism in the tautomeric change of nitro compounds by the isotopic method," (In the index fourth author: Stirina, Ye. Z.), Nauch. zapiski (Dnepropetr. gos. un-t), Vol. XXXIII, 1948, p. 111-14

SO: U-5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).